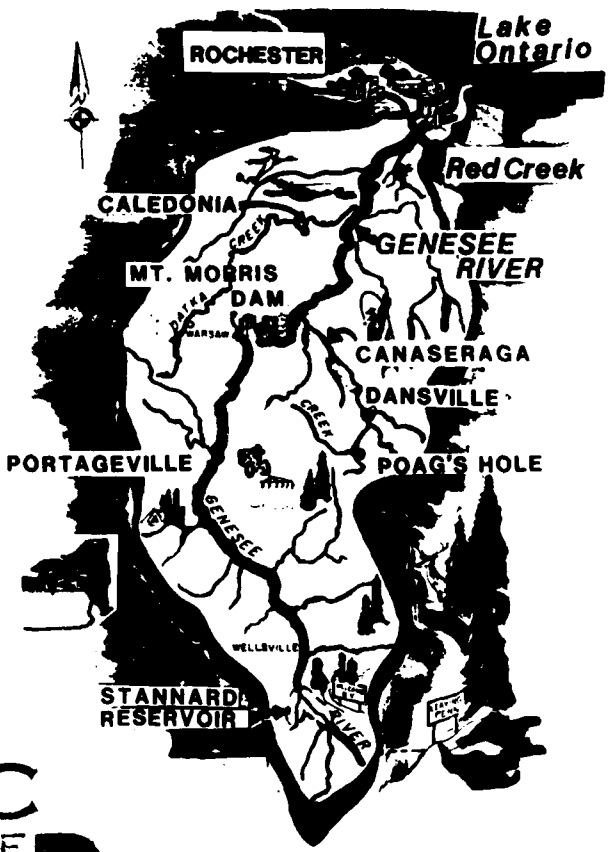
Feasibility Report

Genesee River Basin Study

Volume 2 Supporting Documentation



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18. SUPPLEMENTARY NOTES

This Feasibility Report is Final.

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Genesee River Basin Comprehensive Study
Mt. Morris Dam and Reservoir
Letchworth State Park at Mt. Morris, New York
Considered Stannard Dam/Reservoir and Modification to existing Mt. Morris Dam.

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This Feasibility Report discusses plans considered under the Genesee River Basin Study Authority. Two of these plans: a multi-use reservoir at Stannards and modification to the existing Mt. Morris Dam and reservoir for multi-use including flood control, recreation, hydropower, and irrigation. These plans were found not economically feasible for single-purpose flood control. The Federal Government therefore recommended no further Federal actions.

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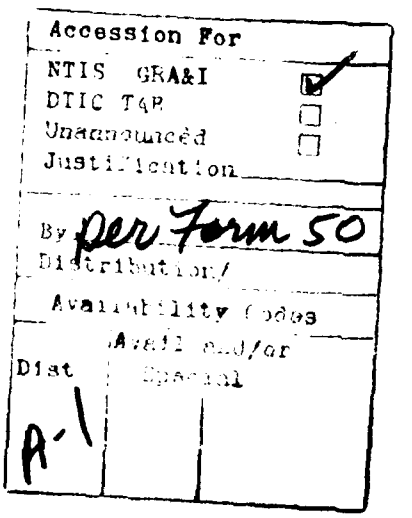

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A1 BASIN DESCRIPTION

A1.1 General.

The Genesee River rises in the Allegheny Mountains in Potter County, Pennsylvania, and flows north for about 157 miles to Rochester, New York, where it empties into Lake Ontario. The watershed is roughly elliptical in shape, with a north south major axis of approximately 100 miles, and a maximum width of 40 miles. The total basin area is 2,480 square miles, and can be found on Plate A1. The largest tributary of the Genesee River is Canaseraga Creek, with a drainage area of 337 square miles. The confluence of Canaseraga Creek with the Genesee River is about 4 miles downstream of the Corps of Engineers dam at Mount Morris. The topography of the southern portion of the basin, upstream of the Mount Morris Dam, is steep and rugged, while the northern portion downstream of Mount Morris is gently rolling plains. The Genesee River drops from about elevation 1,080 feet NGVD to 768 feet NGVD over the three waterfalls in Letchworth Park (just upstream of Mount Morris), flowing through deep gorges cut in the Portage geological formations in Letchworth Park. From Mount Morris downstream, Genesee River flows through alluvial plains in wide flat valleys that can be up to 3 miles in width. At Rochester, the river drops over three falls from elevation 481 feet NGVD to elevation 249 feet NGVD, and then empties into Lake Ontario. A profile of the Genesee River and its major tributaries is shown on Plate A2.

When the slope characteristics of the Genesee River are studied, the slopes contrast from a flashy, steep gradient stream to a sluggish, meandering river. The river from its source in Pennsylvania to the New York State boundary has a slope of approximately 102 feet/mile. For the next 25 miles, the slope is approximately 12 feet/mile, and in the 38 miles before the three waterfalls in Letchworth State Park, the slope is approximately 6 feet/mile. Through the 17 miles of Letchworth State Park, the river drops 317 feet. From Mount Morris to Rochester, the river drops at 0.8 feet/mile. The last 6 miles to Lake Ontario there is no slope.

The largest tributary of the Genesee River is Canaseraga Creek. Canaseraga Creek Watershed drains 337 square miles. Its confluence with the Genesee River is near Jones Bridge, just downstream of Mount Morris Dam. Canaseraga Creek resembles the Genesee River Basin, in that the reaches upstream of Dansville are steep and rugged, while downstream of Dansville, Canaseraga flows through a flat alluvial plain to the Genesee River. Above Dansville, the main stem has a slope of about 40 feet/mile, and below Dansville, Canaseraga Creek has a slope of about 3 feet/mile. The Canaseraga Creek basin is roughly square in shape, about 20 miles to a side. The main stem, which rises at about elevation 1,900 NGVD, has a length of 42 miles. Canaseraga Creek joins the Geneseee River at elevation 548 feet NGVD.

Other tributaries of the Genesee River have a wide range in size and topographic characteristics. For example, Angelica Creek, in the watershed above Mount Morris, has a drainage area of 90 square miles, and is topographically rugged, with a main stream slope of 38 feet/mile. Black Creek, in the lower basin, has a drainage area of 201 square miles. Its basin is relatively flat and marshy, with a main channel slope of 6.5 feet/mile. Drainage area for selected sites on the Genesee River and the major tributaries can be found on Table A1.

A1.2 Climatology.

The climate of the Genesee River Watershed is generally that of the humid or forest climate which prevails over most of the United States east of the Mississippi River. Average annual temperatures range from 45°F to 48°F throughout the basin. Temperatures have reached slightly over 100°F in most parts of the watershed, and it has been as low as 20 to 40 degrees below zero. The average annual precipitation on the basin ranges from 25 to 40 inches with sharp difference between the western rim and the central parts of the valley. Areal distribution of the annual average precipitation is presented on Plate A3.

A1.3 Existing Flood Control Structures.

The existing Corps of Engineers built flood control projects in the basin are:

a. Mount Morris Dam. This project consists of a dam at Mount Morris on the Genesee River, some 32 miles southwest of Rochester, New York. The concrete gravity dam, rising 210 feet above the river bed, controls a drainage area of 1,080 square miles, and has a flood control pool of 337,400 acre-feet, with very little conservation pool storage. The project was completed in 1953, at a Federal cost of $23,365,559. Thus far, Mount Morris has prevented flood damages estimated at $346,670,000 (total to 30 September 1985). For the flood of June 1972, Mount Morris prevented an estimated $210,000,000.

b. Local flood control project on Oatka Creek at Warsaw, New York. This project consists of enlargement of the creek channel to increase the capacity of Oatka Creek, a drop structure at the upstream limit of improvement, abutment protection at two bridges, and construction of several short sections of retaining walls. The project was completed in 1968 at a cost of $698,300. Flood damages prevented to date are estimated at $415,400.

c. Wellsville Flood Control Project, Genesee River and Dyke Creek. This project provided for enlargement of the channels of both streams, underpinning of two bridges, riprap bank protection, drop structures and appurtenant works. The project was completed in 1959 at a cost of $1,230,000. After the June 1972 flood, the project was repaired at a cost of $374,000. Two separate rectification measures have been undertaken to correct deficiencies in the project at a cost of $2,418,000 in 1973-1974 and in 1976. Flood damages prevented to date (30 September 1985) have been estimated at $13,471,000. The project was estimated to have prevented $8,000,000 in flood damages during the June 1972 event.

Table A1 - Drainage Areas, Genesee River Watershed

	Stream and Location	Drainage Area (sq. mi.)	Miles Above Mouth*
1.	Genesee River below Genesee, PA	84.4	157.3
2.	Genesee River at Shongo, NY	141	153.0
3.	Genesee River at Stannards, NY	178	145.4
4.	Genesee River above Dyke Creek at Wellsville, NY	216	141.5
5.	Dyke Creek at mouth at Wellsville, NY	72.6	-
6.	Genesee River at Scio, NY	308	136.3
7.	Vandermark Creek at mouth of Scio, NY	22.7	-
8.	Genesee River at Dam at Belmont, NY	384	130.3
9.	Phillips Creek at mouth at Belmont, NY	30.5	-
10.	Genesee River above Angelica Creek near Angelica, NY	489	122.3
11.	Angelica Creek at mouth	90.1	-
12.	Genesee River above mouth of Black Creek at Belfast, NY	600	118.4
13.	Black Creek at mouth at Belfast, NY	31.0	-
14.	Genesee River above Caneadea Creek at Caneadea, NY	667	112.7
15.	Caneadea Creek at mouth at Caneadea, NY	62.8	-
16.	Cold Creek at mouth at Fillmore, NY	40.9	-
17.	Rush Creek at mouth of Fillmore, NY	41.2	-
18.	Genesee River below mouth of Rush Cr. at Fillmore, NY	846	102.6
19.	Genesee River above mouth of Wiscoy Cr. at Rossburg, NY	854	99.3
20.	Wiscoy Creek at mouth at Rossburg, NY	112	-
21.	Genesee River at Portageville, NY	984	89.8
22.	Silver Lake Outlet at mouth near Mount Morris, NY	31.4	-
23.	Genesee River at Mount Morris Dam	1,080	69.3
24.	Genesee River above mouth of Canaseraga Creek	1,084	63.8
25.	Canaseraga Creek at Poag's Hole	89	-
26.	Canaseraga Creek near Dansville, NY	152	-
27.	Keshequa Creek at mouth at Sonyea, NY (tributary to Canaseraga Creek)	69.0	-
28.	Canaseraga Creek at mouth near Mount Morris, NY	337	-
29.	Genesee River near Fowlerville, NY	1,542	41.2
30.	Genesee River above mouth of Conesus Creek at Avon, NY	1,580	36.3
31.	Conesus Lake at Lakeville, NY	69.8	-
32.	Conesus Creek at mouth of Avon, NY	91.6	-
33.	Genesee River above mouth of Honeoye Cr. at Golah, NY	1,711	27.4
34.	Honeoye Lake at Honeoye, NY	41.0	-
35.	Hemlock Lake at Hemlock, NY	43.5	-
36.	Honeoye Creek below mouth of Hemlock Lake Outlet	150	-
37.	Honeoye Creek at Honeoye Falls, NY	196	-
38.	Honeoye Creek at Rush, NY	242	-
39.	Honeoye Creek a Golah, NY	267	-
40.	Genesee River above mouth of Oatka Cr. at Scottsville, NY	1,985	22.7
41.	Oatka Creek at mouth at Scottsville, NY	221	-
42.	Genesee River above mouth of Black Creek	2,210	14.9
43.	Black Creek at Churchville, NY	130	-
44.	Black Creek at mouth at Genesee Junction	201	-
45.	Genesee River at mouth at Rochester, NY	2,480	-

* Genesee River reaches only.

d. Snagging and clearing projects were performed at the following areas in the Genesee River Basin:

a. Canaseraga Creek, lower reaches (1954)

b. Genesee River and Dyke Creek at Wellsville (1951) and

c. Keshequa Creek at Nunda (1955)

A1.4 Other Flood Control Projects.

Other flood control projects in the Genesee Basin include flood walls along the Genesee River in the city of Rochester, and levee and pumps built by local interests along Canaseraga Creek and its tributaries (lower reaches).

A1.5 Other Control Works.

In addition to the flood control projects mentioned in the previous two sections, there are other structures on the Genesee River that effect discharges and water levels. These structures are:

a. Two run-of the-River hydropower plants, developed by the Rochester Gas and Electric Company, on the Genesee River in Rochester.

b. The Court Street Dam, operated by the New York State Department of Transportation, which is used to maintain a constant water surface elevation in the New York State Barge Canal, which crosses the Genesee upstream of the dam, during the navigation season. This dam is located in the City of Rochester;

c. Rushford Lake on Caneadea Creek, operated by the Rochester Gas and Electric Corporation;

d. A dam on Hemlock Lake, in the Honeoye Creek Basin, operated by the City of Rochester, to provide water supply to that city;

e. A dam on Conesus Lake outlet to maintain adequate lake levels for recreation on the Lake;

f. A dam on the Genesee River, just below Mount Morris, operated by Rochester Gas and Electric company for power;

g. A concrete arch type dam on the Wiscoy Creek, 3 miles upstream of the Genesee River; and

h. A 14 feet high dam at Belmont, New York on the Genesee River.

A1.6 Summary of Studies.

With this current Genesee River Basin study in the reconnaissance phase, as much data and information as possible was used from earlier studies. The information that was updated for this study included:

a. Hydropower benefits;

b. discharge-frequency curves;

c. stage-damage curves, and

d. flood reduction benefits.

The existing information that was used was gathered from file reports and 4 published reports. The published Reports are:

a. "Genesee River Basin Study," June 1969, Buffalo District

b. "Stannard Reservoir, New York, Letter Report; Post Flood Report on Effects of Agnes," 1 April 1974, Buffalo District;

c. "Phase I Report, Canaseraga Creek, New York, Local Protection Project," Sept 1974, prepared by Erdman and Anthony Associates, Consulting Engineers, for the Buffalo District; and

d. "Reservoir Regulation Manual, Mount Morris Dam and Reservoir," Buffalo District, September 1978.

A2 HISTORICAL FLOODS

Damaging floods on the Genesee Basin have occurred in all months of the year except August. Summer floods are, in general, localized in a part of the watershed and are usually the results of convectively usable air conditions. Winter and Spring floods are usually the result of frontal precipitation on saturated or frozen ground, or on melting snow cover, although floods have occurred from melting snow cover alone. Some of the larger floods are:

a. Flood of March 1865. The largest known peak discharge at Rochester, estimated at 54,000 cfs, was the result of a heavy snowfall, followed by a sudden thaw accompanied by warm rains. The capacity of the channel in Rochester at that time was less than 40,000 cfs; hence, at the flood crest an overflow in excess of 14,000 cfs flowed into the city, inundating most of the central portion and causing extensive damage. The flats from Rochester to Mount Morris were flooded, and the embankment of the New York Central Railroad near Avon was destroyed.

b. Flood of March 1875. This flood was caused by the spring break-up and warm rain. During the flood, an ice jam formed at the Clarissa Street bridge in Rochester and backwater inundated large areas of the city, causing extensive damage.

c. Flood of June 1889. As a result of general rains, all streams in western New York were in flood. Bridges were washed out at Wellsville, Belmont, Mount Morris, and Dansville, and agricultural interests in the Genesee and Canaseraga valley flats were severely damaged. Rochester escaped damage.

d. Flood of May 1894. Heavy precipitation terminated a long wet spell. The discharge at Mount Morris increased from 5,000 to 42,000 cfs in less than 36 hours. The Canaseraga and Genesee flats were inundated to depths of 4 to 6 feet, and the area covered was stated by local newspapers to be 60 to 80 square miles. The valley storage reduced the discharge at Rochester to approximately 30,000 cfs, and little damage occurred in the city.

e. Flood of April 1896. This flood was caused by melting snow from the hills of the watershed flowing into swollen streams. The Genesee and Canaseraga flats were inundated but the flood preceded the growing season and little damage resulted. Rochester was not affected.

f. Flood of March 1902. This flood was caused by a sudden thaw, during which no appreciable precipitation occurred. The Genesee flats were flooded and bridges in the upper basin were washed out. Part of the business section of Rochester was inundated to a depth of about 2 feet.

g. Flood of July 1902. This flood was the result of a heavy rainfall on ground saturated by prior light rains. Local interests estimated the flow at Mount Morris to have exceeded 40,000 cfs, and the flats in the Canaseraga and Genesee valleys were inundated, resulting in large damages to crops. At Rochester, the discharge did not exceed 20,000 cfs and no damage occurred.

h. Flood of March 1913. Streams flowing at near-bankfull capacity, as a result of a thaw, were augmented by 5 days of heavy rainfall. During the period 23-27 March, inclusive, the total rainfall for the upper basins was 4.93 inches and for the lower, 3.94 inches. The resulting flood peaked at 37,800 cfs feet at St. Helena, 38,000 cfs at Jones Bridge, and 42,000 cfs at Rochester. The Canaseraga flats were in flood nearly to Dansville and the Genesee flats from Mount Morris to Rochester. Parts of the business section of Rochester were inundated and damages were large.

i. Flood of March 1916. This flood was caused by rapid melting of a heavy snow cover. The peak discharge of 48,300 cfs at Rochester was the greatest since 1865, but, because of channel improvements through the city, completed after the 1913 flood, little damage occurred.

j. Flood of May 1916. This flood the second of the year, was caused by excessive precipitation. Discharges of 44,400 and 55,100 cfs were recorded at St. Helena and Jones Bridge, respectively, and are the greatest of record for these stations. Early crops in the flats were affected but the loss was small, and the city of Rochester sustained no damages.

k. Flood of December 1927. As the result of a long wet spell terminated by 2 days of heavy rainfall, crests of 46,800 cfs at Jones Bridge and 29,600 cfs at Rochester occurred on 1-2 December, respectively. The Genesee and Canaseraga flats were inundated but little damage occurred. Rochester was not affected.

l. Flood of July 1935. This flood, caused by an extensive three-day rainstorm concentrated over south central New York, affected only the southeastern portion of the Genesee Basin. The precipitation stations in this portion of the basin, Alfred, Andover, Angelica, and Dansville, recorded totals for the 3-day rain ranging from 5.37 to 6.35 inches. No excessive rains were recorded by stations in other sections of the Genesee Basin. The peak discharges in the Genesee River were only 24,500 cfs at Jones Bridge and 18,600 cfs at Rochester, whereas the station near Dansville on Canaseraga Creek recorded a peak flow of 8,390 cfs. The principal damage areas were the argicultural lands in the Canaseraga valley, and the village of Wellsville on Dyke Creek. Damage in the Genesee flats was small and Rochester was not affected.

m. Flood of July 1942. Floods, confined principally to western Pennsylvania, were caused by very intense rainfall over a relatively short duration. Records for point rainfall for durations up to 24 hours were broken during this storm. On the Genesee Basin, damage was confined to the upper reaches in the vicinity of Wellsville. The rainfall at Alfred, Andover, and Angelica, for 17-18 July was 3.35, 4.10, and 4.05 inches, respectively. The records from automatic rainfall recorders indicate that most of the precipitation occurred during the evening of the 17th and the early morning of the 18th. Peak discharges of 11,200 cfs, 18,900 cfs, and 15,700 cfs were recorded at Scio, St. Helena, and Jones bridge, respectively.

n. Floods of March-April 1950. This period covers two peaks a week apart. The first was caused by snowmelt accompanied by light precipitation and produced a crest of 45,400 cfs at Jones Bridge on the 29th of March. The second crest, on 5 April, was the result of moderate rainfall on wet soil and produced a crest at Jones Bridge of 25,200 cfs.

o. Flood of November 1950. The heavy rain of 25 November caused high water in the upper basin, and Wellsville experienced severe flooding. The south side of the village was inundated and many families were taken from their homes in boats. Several sections of highway near Wellsville and Portageville were under water. In the lower basin, flooding was slight, although some flatlands were flooded and sections of highway near Geneseo were covered by water. Although the construction of Mount Morris Dam was not complete at this time, the dam was operated for flood control.

p. Flood of March 1956. This flood was of the type common in the Genesee River Basin, a combination of warm rain and snowmelt. This flood occurred after completion of Mount Morris Dam, and gives an example of the operation procedures used during a flood. Releases were reduced to about 300 cfs when the storm began, and then were increased to develop a flow of 12,000 cfs at the Jones Bridge gage, after the danger of downstream flooding had passed. Low-lying farmlands below Avon were flooded from local runoff, and there was some backwater flooding during the reservoir evacuation period. Part of this flooding was due to the fact that because of the protection provided by the dam, there has been some encroachment into the old flood plain. Also some banks had been breached by local farmers in order to drain their lands. The backwater flooding prompted reconnaissance of the lower basin, which established 10,500 cfs as a within-channel capacity in the

vicinity of Avon and set the Avon gage as the primary control point for future evacuation periods. The storm runoff resulted in a peak flow to the reservoir of 46,000 cfs and the operation of the dam controlled the flow at Jones Bridge to not more than 12,000 cfs. The flood discharge at Rochester was held to 24,300 cfs, in contrast to an estimated natural flow of 48,300 cfs. The maximum storage in the reservoir was 183,540 acre/feet, with a corresponding pool elevation of 706.9 feet.

q. Flood of March-April 1960. This flood was caused primarily by melting of heavy snow cover. Prior to the flood, the average water content of the snow cover was 3.3 inches in the upper basin and 4.1 inches in the lower basin. Therefore, with a sudden rise in temperature, the lower basin had the potential of a serious flood, even with no discharge from the reservoir. Releases from the reservoir were reduced to 300 cfs when a general thaw was forecast, and after the danger of downstream flooding was passed, flows were increased to 10,500 cfs at Avon. Low-lying farmlands again were flooded by local runoff, but no backwater flooding occurred during the evacuation period. The peak inflow to the reservoir was 35,000 cfs and the controlled peaks at Jones Bridge and Avon were 10,000 and 10,500 cfs, respectively.

r. Flood of April 1961. This flood was of moderate proportions throughout the Genesee Basin, with no significant flooding except in the Canaseraga Creek watershed. It was the fourth highest flood of 50 years of record at Dansville, with a peak of 8,230 cfs. and the highest of 12 years of broken record at Shakers Crossing, near the mouth of the Canaseraga. Flooding of the rich farmland in the Canaseraga valley caused extensive damage.

s. Flood of June-July 1972. (Hurricane Agnes) Tropical Storm Agnes and associated weather systems produced the most destructive widespread flooding of record over eastern United States. In the Genesee Basin, the predominant portion of the rainfall occurred from 9 p.m. 20 June, to 6 a.m. on 23 June. The maximum total storm rainfall, 13.72 inches, and maximum daily rainfall, 6.57 inches, were recorded at the Wellsville gage. A "bucket survey" of the Genesee Basin made by the Corps personnel indicated a maximum of about 16 inches of rainfall in the upper reaches of Dyke Creek near Andover, New York. The average total basin rainfall for the period 20-25 June was 7.1 inches while the average for the same period on the upper basin (above Mount Morris dam) was 10.20 inches. Regulation during a protion of this flood required the controlled release of dam outflows in excess of downstream channel capacity to prevent overtopping the spillway with debris laden flows. The reservoir pool reached a maximum elevation of 755.8 feet, thus occupying approximately 96 percent of total reservoir storage. This was the highest pool elevation ever attained in the Mount Morris Reservoir. Detailed information on this flood is contained in Buffalo District's "Report of Flood, Tropical Storm Agnes, 21-23 June 1972, Genesee River Basin," dated August 1973.

t. Flood of February-March 1976. During the period 16-23 February, approximately 2.6 inches of rain fell over the upper basin. This rainfall augmented by about 2 inches of snowmelt runoff resulted in a peak reservoir elevation on 23 February of 727.6, or about 71 percent of available storage. During the period 1-6 March, approximately 2.5 inches of rain, including some snowmelt, caused the pool to again rise. On 6 March, the reservoir pool peaked at 744.1 feet, thus utilizing 85 percent of the total storage. Peak inflows to Mount Morris Reservoir during the February and March runoff events reached 32,500 cfs and 28,000 cfs, respectively. Although the peak inflows were not particularly impressive, the volume of water received caused the 6 March pool elevation to be the second highest of record, exceeded only by the flood from Hurricane Agnes.

Since the March 1976 floods, most of the flooding in the Genesee watershed has been limited to the Black and Oatka Creek watersheds (March 1978, March 1979, March 1984, December 1984 and January 1986). Heavy rains have caused flooding on the tributaries to the Genesee River around and south of Wellsville, New York, at various times since 1976.

A3 FLOOD PRONE AREAS

Flooding is experienced throughout the Genesee River watershed. Flooding occurs on Black Creek, Oatka Creek, Honeoye Creek, Conesus Lake, Honeoye Lake, Canaseraga Creek, Genesee River and Dyke Creek. These are the major areas that experience flooding, and there are isolated incidents of flooding in areas other than listed above. The Genesee River was broken up into 14 damage reaches, which are described in Table A2. Table A3 gives the approximate channel capacities for each reach.

A4 GAGING STATIONS

A4.1 Stream and Lake Gages

There are numerous gage sites located throughout the Genesee River Basin. This report has been able to locate 51 active or discontinued gage sites in the Genesee Basin. Table A4 lists the active gages in the Genesee River Basin and Table A5 lists the discontinued gages in the basin. Table A6 has the maximum stage or discharge of record for the active gages. The location of the active recording gages can be found on Plate A4.

A4.2 Precipitation Gages

The aerial distribution of precipitation over the Genesee River Basin is represented by the total precipitation statons at Avon, Warsaw, Hemlock, Portageville, Dansville, Wiscoy, Rushford, Angelica, Wellsville 4 NNW, and Whitesville, and by the recording gages at Rochester Airport, Pavilion, East Bloomfield, Mount Morris Dam, Wellsville, and Raymond. The temporal distribution of rainall is represented by the recording gages. All of the precipitation gages are in New York State except for the gage at Raymond, Pennsylvania. The location of these gages can be found on Plate A5.

Table A2 - Damage Reaches of the Genesee River Basin

Reach	River Mile	Index Point Location	Initial Damage Stage in Feet (NGVD Datum)	Limit of Reach
Lower Basin				
Rochester 1	0.0 to 11.6	The gate at Driving Park Avenue in Rochester, mile 6.1	260.8	From the mouth of Lake Ontario to the NYS Barge Canal
Chili - Henrietta 2	11.6 to 21.1	The confluence of Black Creek and the Genesee R., mile 14.1	516.0	Between the NYS Barge Canal and Brown's Bridge
Avon 3	21.1 to 35.3	The confluence of Honeoye Ck. and the Genesee R., mile 26.6	529.0	From Brown's Bridge to the gage site at Avon Bridge
Geneseo 4	35.3 to 65.5	The gage at Jones Bridge, mile 61.2	560.0	Between the Avon Bridge and the Rochester Gas and Electric Dam
Upper Basin				
Mt. Morris 5	65.5 to 86.0	(1)	(1)	From Rochester Gas and Electric Dam to the Erie Railroad Bridge
Portageville 6	86.0 to 96.0	At the gage site in Portageville, mile 86.7	1102.0	Between the Erie Railroad Bridge and the mouth of Wiscoy Creek.
Fillmore 7	96.0 to 110.6	400 feet downstream of the bridge in Fillmore, mile 99.9	1165.0	From the mouth of Wiscoy Creek to 2,200 feet downstream of the bridge at Oramel
Belfast 8	110.6 to 120.0	In Belfast, mile 113.5	1261.0	From 2,200 feet downstream of the bridge at Oramel to 6,300 upstream of Transit Bridge, south of Belfast

Table A2 - Damage Reaches of the Genesee River Basin (Cont'd)

Reach	River Mile	Index Point Location	Initial Damage Stage in Feet (NGVD Datum)	Limit of Reach
Belvidere 9	120.0 to 125.1	At the upstream side of New York State Route 408, bridge over the Genesee River, mile 123.0	1320.0	From 6,300 feet upstream of Transit bridge to a section 6,800 feet downstream of NYS Route 244 in Belmont
Belmont 10	123.1 to 131.0	400 feet upstream or New York State Route 244, mile 126.7.	1366.0	From 6,800 feet downstream of New York State Route 244 to 3,300 feet downstream of the bridge in Scio
Scio 11	131.0 to 136.0	At the gage site at Scio, mile 132.8	1446.5	From 3,300 feet downstream of the bridge in Scio to 1,500 feet downstream of New York State Route 17
Wellsville 12	136.0 to 138.8	(2)	(2)	From 1,500 feet downstream of New York State Route 17 to Weidrick Road
Stannards Corners 13	138.8 to 140.8	3,000 feet upstream of Weidrick Road, mile 139.4	1511.7	From Weidrick Road to Hanks Road
Shongo 14	140.8 to 148.0	1,600 feet upstream of Hanks Road, mile 141.1	1529.5	From Hanks Road to the New York-Pennsylvania State line

(1) This reach includes the area known as Letchworth State Park and is mainly a deep gorge that contains Mount Morris Lake.

(2) This reach lies entirely within the village of Wellsville and has a completed flood control project.

Table A2 - Damage Reaches of the Genesee River Basin (Cont'd)

Reach No.	Index Point	Description of Reach
WELLSVILLE AREA:		
Genesee River		
12, G-1	1,400 feet downstream from Bolivar Road Bridge	Northerly village limits to Bolivar Road
12, G-2	1,500 feet upstream from Bolivar Road Bridge	From Bolivar Road to a line joining intersection of Oak and Main Streets with intersection of Seneca and Chamberlain Streets
12, G-3	100 feet downstream from Pearl Street Bridge	From above line to Pearl Street and Stevens Street
12, G-4	100 feet downstream from State Street Bridge	Pearl Street and Stevens Street to State Street
12, G-5A	1,100 feet upstream from State Street Bridge	State Street to West Dyke Street, left bank only
12, G-5B	1,100 feet upstream from State Street Bridge	West Dyke Street to southerly village limit
12, G-6	1,200 feet upstream of existing municipal dam	Southerly village limit to southerly property line, left bank only

Table A3 - Channel Capacities

Channel Capacity	cfs
Reach 1	33,000
Reach 2	14,000
Reach 3	11,000
Reach 4	12,000
Reach 5	-
Reach 6	24,000
Reach 7	14,000
Reach 8	9,000
Reach 9	6,000
Reach 10	11,000
Reach 11	5,000
Reach 12, G-1	4,000
Reach 12, G-2	9,000
Reach 12, G-3	20,000
Reach 12, G-4	21,000
Reach 12, G-5A	14,000
Reach 12, G-5B	14,000
Reach 12, G-6	14,000
Reach 13	5,000
Reach 14	3,000

Table A4 - Active Gages

	Gage	Gage #	Type	Drainage Area (sq. mi.)	First In-stalled	# of Years of Record *
1.	Genesee River at Wellsville, NY	04221000	Recording	288	Aug 1955	17
2.	Black Creek at Hyder Flats Road at Black Creek, NY	04221769	Crest-Stage	10.6	1978	7
3.	Wiscoy Creek at Bliss, NY	04222600	Crest-Stage	22.0	1962	22
4.	Genesee River at Portageville, NY	04223000	Recording	984	Aug 1908	77
5.	Mt. Morris Lake near Mt. Morris, NY	04224000	Recording	1,080	Jan 1952	33
6.	Sugar Creek near Ossian, NY	04224700	Crest-Stage	10.1	1964	22
7.	Canaseraga Creek above Dansville, NY	04224775	Recording	88.9	Aug 1974	11
8.	Stony Brook Trib. at South Dansville, NY	04224807	Crest-Stage	3.3	1977	8
9.	Mill Creek at Patchville, NY	04224900	Crest-Stage	4.2	1964	22
10.	Canaseraga Creek at Shakers Crossing, NY	04227000	Recording	335	Jul 1915	25
11.	Genesee River near Mt. Morris, NY (Jones Bridge)	04227500	Recording	1,424	May 1903	82
12.	Conesus Lake near Lakeville, NY	04227980	Recording	69.8	Jul 1963	23
13.	Genesee River at Avon, NY	04228500	Recording	1,673	Aug 1955	30
14.	Honeoye Lake near Honeoye, NY	04228845	Recording	41.0	Jul 1963	22
15.	Honeoye Creek at Honeoye Falls, NY	04229500	Recording	196	Oct 1945	39
16.	Oatka Creek at Warsaw, NY	04230380	Recording	39.1	Dec 1963	22
17.	Oatka Creek at Garbutt, NY	04230500	Recording	200.0	Oct 1945	40
18.	Genesee River at Ballantyne Bridge near Mortimer, NY	04230650	Recording	2,210	Oct 1973	10
19.	Black Creek at Churchville, NY	04231000	Recording	130	Oct 1945	40
20.	Hotel Creek at Griffin Road near Churchville, NY	04231040	Crest-Stage	4.6	1976	10
21.	Genesee River at Driving Park Ave. at Rochester, NY	04232000	Recording	2,467	Apr 1904	82

* Through 1984

Table A5 - Discontinued Gages

	Gage	Gage #	Type	Drainage Area (sq. mi.)	First In-stalled	# of Years of Record
1.	Quig Hollow Brook near Andover, NY	04220450	Crest-Stage	4.2	1965	7
2.	Dyke Creek near Andover, NY	04220470	Recording	38.0	Feb 1964	4
3.	Dyke Cr. at Wellsville, NY	04220500	Crest-Stage	72.1	1956	10
4.	Genesee River at Scio, NY	04221500	Recording	308.0	Jun 1916	56
5.	Van Campen Creek at Friendship, NY	04221600	Recording	45.9	1964	5
6.	Angelica Cr. at Transit Bridge, NY	04221720	Recording	86.7	Feb 1964	5
7.	Genesee River at Transit Road Bridge near Angelica, NY	04221725	Crest-Stage	579.0	1975	2
8.	Genesee R. at Belfast, NY	04221820	Recording	644.0	Feb 1964	4
9.	Caneadea Creek at Caneadea, NY	04222000	Recording	62.0	Jul 1949	19
10.	East Koy Creek at East Koy, NY	04222900	Recording	46.5	Jan 1964	5
11.	Canaseraga Creek at Canaseraga, NY	04224650	Recording	58.4	Jan 1964	6
12.	Sugar Creek near Canaseraga, NY	04224740	Crest-Stage	16.9	1975	3
13.	Stony Brook at Stony Brook State Park, NY	04224848	Crest-Stage	21.4	1975	2
14.	Mill Creek at Dansville, NY	04224978	Crest-Stage	35.9	1977	1
15.	Canaseraga Creek near Dansville, NY	04225000	Recording	152.0	Oct 1917	61
16.	Canaseraga Creek at Groveland, NY	04225500	Crest-Stage	180.00	1917	14
17.	Bradner Creek near Dansville, NY	04225600	Crest-Stage	9.7	1976	1
18.	Keshequa Creek at Nunda, NY	04225915	Crest-Stage	32.7	1975	3
19.	Keshequa Creek at Tuscarora, NY	04225950	Crest-Stage	58.5	1976	2
20.	Keshequa Creek at Craig Colony, at Sonyea, NY	04226000	Recording	68.3	Mar 1911	19
21.	Conesus Creek near Lakeville, NY	04228000	Recording	72.0	Dec 1920	15
22.	Little Conesus Creek near South Lima, NY	04228870	Crest-Stage	7.4	1975	2
23.	Little Conesus Creek near East Avon, NY	04228380	Crest-Stage	8.0	1975	2
24.	Springwater Creek at Springwater, NY	04228900	Crest-Stage	10.1	1964	8
25.	Oatka Cr. at Rock Glen, NY	04230320	Crest-Stage	14.5	1975	2
26.	Oatka Cr. at Pearl Cr., NY	04230400	Crest-Stage	78.4	1975	2
27.	Pearl Cr. at Pearl Cr., NY	04230410	Crest-Stage	10.8	1975	3
28.	Oatka Creek near Pavilion Center, NY	04230423	Crest-Stage	110.0	1975	3
29.	Mad Creek near LeRoy, NY	04230470	Crest-Stage	10.2	1975	2
30.	Genesee River below Erie Canal at Rochester, NY	04231500	Recording	2,457	1904	15

Table A6 - Maximum Stages and Discharges
Through 1984

Gage	Gage #	Max. Discharge (cfs)	Date	Max. Stage**	Date
		15,800	8 Mar 56	13.60 ft	28 Oct 81
1. Genesee River at Wellsville, NY	04221000	38,500*	23 Jun 72	20.7 ft*	23 Jun 72
2. Black Creek at HYDER FLATS Road at Black Creek, NY	04221769	3,500	22 Mar 78	1,761 ft	22 Mar 72
3. Wiscoy Creek at Bliss, NY	04222600	1,850	23 Jun 72	4.06 ft	23 Jun 72
4. Genesee River at Portageville, NY	04223000	90,000	23 Jun 72	35.25 ft	23 Jun 72
5. Mt. Morris Lake near Mt. Morris, NY	04224000	-	-	755.46 ft	25 Jun 72
6. Sugar Creek near Ossiam, NY	04224700	1,460	18 Jun 84	7.06 ft	18 Jun 84
7. Canaseraga Creek above Dansville, NY	04224775	2,870	20 Sep 77	5.51 ft	20 Sep 77
8. Stony Brook Trib. at S. Dansville, NY	04224807	790	3 Aug 81	15.89 ft	3 Aug 81
9. Mill Creek at Patchville, NY	04224900	1,860	5 Mar 64	3.79 ft	5 Mar 64
10. Canaseraga Creek at Shakers Crossing, NY	04227000	5,270	4 Mar 76	13.33 ft	4 Mar 76
		11,200*	23 Jun 72	-	-
11. Genesee River near Mt. Morris, NY (Jones Bridge)	04227500	55,100	17 May 16	25.77 ft	-
12. Conesus Lake near Lakeville, NY	04227980	-	-	822.50	24 Jun 72
13. Genesee River at Avon, NY	04228500	16,500	25 Jun 72	40.67 ft	24 Jun 72
14. Honeoye Lake near Honeoye, NY	04228845	-	-	806.91 ft	23 Jun 82
15. Honeoye Creek at Honeoye Falls, NY	04229500	4,630	28 Mar 50	6.42 ft	28 Mar 50
		6,600*	23 Jun 72	-	-
16. Oatka Creek at Warsaw, NY	04230380	4,010	23 Jun 72	9.75 ft	23 Jun 72
17. Oatka Creek at Garbutt, NY	04230500	7,050	31 Mar 60	8.64 ft	31 Mar 60
18. Genesee River at Balluntyne Bridge near Mortimer, NY	04230650	-	-	19.33 ft	5 Mar 76
19. Black Creek at Churchville, NY	04231000	4,880	31 Mar 60	9.44 ft	31 Mar 60
20. Hotel Creek at Griffin Road near Churchville, NY	04231040	88	5 Mar 79	12.78	5 Mar 79
21. Genesee River at Driving Park Ave. at Rochester, NY	04232000	48,300	30 Mar 16	-	-
		54,000*	18Mar1865		

* Outside Period of Record.
** All lake elevation in feet NGVD

A5 FUTURE FLOODS

Floods of the same or larger magnitude as those that have previously occurred in the past could also occur in the future. Larger floods have been experienced in the past on streams with characteristics similar to those found in the study area. Combinations of rainfall and runoff similar to those which have occurred in those streams could also occur in the study area.

A6 DAMS AND RESERVOIRS

A6.1 Considered Sites

Various combinations of dams and reservoirs (scenarios) were analyzed in the Reconnaissance stage to develop hydropower and reduce flood damages. The four dams and reservoirs that were analyzed in the Reconnaissance stage were Stannard Dam and Reservoir, Portage Dam and Reservoir, Poag's Hole Dam and Reservoir, and Mount Morris Dam and Reservoir. Stannard, Portage and Poag's Hole were proposed reservoirs previously analyzed in the June 1969 "Genesee River Basin Study." Poag's Hole and Portage were eliminated from further consideration in the Reconnaissance stage of this study. The physical characteristics and operating policies of Stannard would not vary among the plans, while the physical characteristics and/or operating policies could change for Mount Morris, depending upon the plan. The characteristics of Stannard Dam and Reservoir can be found on Table A7 and for the existing Mount Morris Dam, on Table A8. Changes in the characteristics for Mount Morris for the applicable scenarios can be found on Table A9. A description of the plans appears in Section A9. The considered location of the dams can be found on Plate A6. The plan view of Stannard Dam and Reservoir can be found on Plate A7, and for Mount Morris Dam and Reservoir on Plate A8.

A6.2 Reservoir Plans

In the initial phases of this study, 16 scenarios (or alternatives) were developed. After an initial screening of these 16 scenarioes were added to the no action plan to be evaluated more closely. Five alterntives were selected as plans to be further evaluated in the feasibility stage. They were:

a. Plan 1: Re-regulation of Mount Morris Dam and Reservoir;

b. Plan 2: No Federal action

c. Plan 6: A dam and Reservoir at Stannards (Table A7), a multipurpose reservoir with hydropower development.

d. Plan 10: Mount Morris Dam would be raised 27 feet. All the increase in storage would be used for downstream flood control. A run of the river hydropower plant would be built at the base of the dam. The description of Mount Morris Dam can be found on Table A8, with changes attributable to this plan on Table A19.

e. Plan 11: A system of reservoirs comprised of Stannards and Mount Morris for flood control, hydropower and irrigation.

Table A7 - Stannard Dam and Reservoir

	Dam Data	
1	Elevation in feet NGVD of top of dam in feet NGVD	1,630
2	Top width in feet	20
3	Height above stream bed in feet	90
4	Length in feet	2,300
	Spillway Data	
5	Number of gates	4
6	Size of gates in feet	47.5 by 27
7	Elevation of top of gates in feet NGVD	1,620
8	Crest of spillway elevation in feety NGVD	1,593
9	Effective Length of Spillway in feet	190
10	Maximum design head on crest in feet	32
11	Design discharge in CFS	116,000
	Outlet Works Data	
12	Number of pipes	5
13	Size of each pipe in sq. ft.	48
	Reservoir Data	
14	Spillway design pool elevation in feet NGVD	1,625.5
15	Maximum topography in feet NGVD	1,630.0
16	Conservation pool in feet NGVD	1,593
17	Flood control pool in feet NGVD	1,620
18	Size of pool at maximum water surface in acres	2,440
19	Size of conservation pool in acres	1,550
20	Size of flood control pool in acres	2,330
21	Channel elevation at toe of dam in feet NGVD	1,531
22	Conservation storage in acre-ft.	39,500
23	Flood Control storage in acre-ft.	54,000
24	Flood Control storage in inches of runoff	5.7
25	Dead storage in acre-ft.	2,500
	Hydropower Data	
26	Maximum hydropower head in feet	80
27	Minimum hydropower head in feet	48
28	Head used in Hydur in feet	64
29	Minimum flow in CFS	35

Table A8 - Mount Morris Dam and Reservoir

	Dam Data	
1	Elevation of top of dam in feet NGVD	790
2	Top width in feet	20
3	Height above stream bed in feet	215
4	Length in feet	1,028
	Spillway Data	
5	Number of gates	-
6	Size of gates in feet	-
7	Elevation of top of gates in feet NGVD	-
8	Crest of spillway elevation in feet NGVD	760
9	Effective Length of Spillway in feet	550
10	Maximum design head on crest in feet	28
11	Design discharge in CFS	320,000
	Outlet Works Data	
12	Number of pipes	9
13	Size of each pipe in sq. ft.	35
	Reservoir Data	
14	Spillway design pool elevation in feet NGVD	788
15	Maximum topography in feet NGVD	-
16	Conservation pool in feet NGVD	-
17	Flood control pool in feet NGVD	760
18	Size of pool at maximum water surface in acres	3,680
19	Size of conservation pool in acres	-
20	Size of flood control pool in acres	3,300
21	Channel elevation at toe of dam in feet NGVD	575
22	Conservation storage in acre-ft.	-
23	Flood Control storage in acre-ft.	301,000
24	Flood Control storage in inches of runoff	5.24
25	Dead storage in acre-ft.	610

Table A9 - Considered Changes to Mount Morris Dam

Plan 10	
Elevation of top of dam in feet NGVD	817
Height above stream bed in feet	242
Length of dam in feet	1,030
Crest of spillway elevation in feet NGVD	787
Spillway design pool elevation in feet NGVD	815
Flood control pool elevation in feet NGVD	787
Size of pool at maximum water surface in acres	3,828
Size of flood control pool in acres	3,436
Flood Control storage in acre-ft.	406,000
Flood Control storage in inches of runoff	7.05
Head used in HYDUR in feet	36
Plan 11	
Conservation pool elevation in feet NGVD	645
Size of conservation pool in acres	1,455
Conservation storage in acre-ft.	54,000
Flood Control storage in acre-ft.	247,600
Flood Control storage in inches of runoff	4.30
Head used in HYDUR	50

A7 FLOOD PROBABILITIES

A7.1 General

In the following description, "natural" conditions refers to conditions without the present Mount Morris project; "existing" conditions refers to the regulated state of flows with the existing project; and "with-project" conditions refers to conditions which would prevail if Mount Morris Dam were modified as a result of the plans considered herein.

Basic data on the Genesee River reaches is given in Table A10. The discharge-frequency curve for Wellsville-Reach A was used for reaches G-1 through G-4 in Wellsville, and the discharge-frequency for Wellsville-Reach B was used for Reaches G-5A, G-5B, and G-6 in Wellsville.

Because hydroelectric power was dropped as a project purpose prior to completion of the Feasibility Report, and due to the resulting early elimination of Plans 6, 10 and 11 as explained on pages 4-11 and 4-12 of the Main Report, a comprehensive model permitting simulation of short-term variations in flow from multiple reservoirs was not developed.

Table A10 - Genesee River Reaches

Reach	Reach Name	Gage Used	Drainage Area at Gage	Drainage Area at Site	Factor
Reach 1	Rochester	Rochester	2467	2467	1.00
Reach 2	Chili-Henrietta	Rochester	2467	2411	0.980
Reach 3	Avon	Avon	1673	1978	1.163
Reach 4	Geneseo	Jones Bridge	1424	1424	1.00
Reach 5	Mt. Morris	-	-	-	-
Reach 6	Portageville	Portageville	984	984	1.00
Reach 7	Fillmore	Portageville	984	726	.761
Reach 8	Belfast	Portageville	984	641	.680
Reach 9	Belvidere	Portageville	984	483	.527
Reach 10	Belmont	Wellsville	288	418	1.398
Reach 11	Scio	Wellsville	288	309	1.065
Reach 12 (G-1)	Wellsville	Wellsville	288	288	1.000
Reach 12 (G-2)	Wellsville	Wellsville	288	288	1.000
Reach 12 (G-3)	Wellsville	Wellsville	288	288	1.000
Reach 12 (G-4)	Wellsville	Wellsville	288	288	1.000
Reach 12 (G-5A)	Wellsville	Wellsville	288	216	.772
Reach 12 (G-5B)	Wellsville	Wellsville	288	216	.772
Reach 12 (G-6)	Wellsville	Wellsville	288	216	.772
Reach 13	Stannards Corners	Wellsville	288	212	.759
Reach 14	Shongo	Wellsville	288	179	.652

The primary hydrologic investigation effort then involved the development of expected flood damages under existing and with-project conditions for the reaches which would be affected by a combination of Plan 1 and Plan 10 which would include only Mount Morris Dam, that is, Plan 10A.

The general procedure used was to develop the existing discharge-frequency relationships for the affected damage reaches, then to modify them to produce with-project discharge-frequency relationships which account for the considered increased storage capability in Mount Morris Reservoir under with-project conditions.

A7.2 Existing Conditions

The discharge-frequency curves for the stream gages located at Genesee River at Wellsville (04221000), Genesee River at Portageville (04223000), and Canaseraga Creek above Dansville (04224775), were unchanged from the Reconnaissance Report. These curves can be found on Figures A1 through A3. The discharge values used for the frequency analyses can be found on Table A11. These discharge-frequency curves were used to calculate discharge-frequency relationships for each upstream damage reach on the Genesee River. These curves were calculated using t' HEC's microcomputer version of HECWRC (flood flow frequency), dated 14 June 1985.

Bulletin 17B discharge-frequency curves were adapted to the rest of the damage reaches by using the equation $[Q_2/Q_1 = (A_2/A_1)^{EXP\ .9}]$, developed for the Irondequoit Creek Study (July 1981). This equation can be used to estimate discharge frequency curves upstream and downstream of a gage site, as long as the drainage area at the ungaged site is within these limits: $A_2 > .5A_1$ and $A_2 < 1.5A_1$. A_2 is the drainage area at the ungaged site, and A_1 is the drainage area at the gaged site. Q_2 is the discharge at the gaged site. Tables A12a and A12b give the discharge frequencies at the upstream index points.

There are four damage reaches downstream of the Mount Morris Dam. Three of these reaches have index points which can be represented by existing discharge-frequency curves at Genesee River stream-gaging stations, since the index points represent drainage areas which are within 5% of the drainage areas at the respective gages. These reaches are described in Table A2 and are designated as follows: Rochester (Index Point #1, U.S.G.S. Gage #04232000); Chili-Henrietta (I.P. #3, Gage #042320000); and Geneseo (I.P. #4, Gage #04227500). Additional information on the gages is given in Table A4. The discharge-frequency relationships for existing conditions for Reach 4 are given in Table A12a and Figure A4. For Reaches 1 and 2, the same gage was used as an index point, and the discharge-frequency relationship for these reaches for existing conditions are given in Table A12a and Figure A6.

For the Avon reach, (Index Point #3), the damage reach was represented by an index point which was not coincident with a stream gaging station. It was therefore necessary to develop an existing-condition discharge-frequency relationship at the index point. The gage record from 1953 through 1984 was used to develop a discharge-frequency curve for existing conditions at the Avon Gage (#04228500). This relationship is shown on Table A12a and Figure A5.

Because of the existing regulation of the river by Mount Morris Dam, the discharge-frequency relationships for existing conditions could not be analyzed by regional methods. Therefore, a procedure was required which would allow use of discharge frequencies for natural conditions, which can be estimated at ungaged locations. To accomplish this, regional frequency studies were done, to develop discharge frequencies for natural conditions at the Avon gage (Figure A7) and at Index Point #3 (Figure A8).

Differences were developed between the discharges at given frequencies for natural conditions at the Avon gage and at Index Point #3. These differences were then applied to the natural-condition discharges at Index Point #3 to develop discharge frequencies for existing conditions at that point. Two different procedures for weighting these differences were considered, and gave differing results. Since neither procedure was considered clearly more representative than the other, the averages of the values obtained by each were used.

A7.3 Improved Conditions

For the upstream reaches, improved condition discharge frequencies were unchanged from the Reconnaissance Study and are shown on Tables A13a and A13b.

For the downstream Genesee River reaches, once the discharge-frequency relationships were established for existing conditions at each of the index points, discharge-frequency relationships for with-project conditions were developed as described below.

At the index points for Reaches 1, 2, and 4, the with-project condition discharge-frequency curves were calculated by using rainfall-frequency curves from TP-40 (Figure A9) combined with values of increased storage for Mount Morris Reservoir for each modified condition. The modifications being considered all involved adding gates to the spillway, thus increasing the flood control storage available. Two conditions were considered: adding 15 ft gates; and adding 30 ft gates atop the existing spillway. Pertinent data for these conditions is given in Table A14, and the discharge-frequency curves are shown on Figures A4 and A6.

The synthesized existing condition discharge-frequency relationship for Avon, described above, was used to develop the with-project discharge-frequency relationship for Index Point #3 (Figure A10). The procedure has the effect of increasing flow differences by a drainage area factor, but to a greater degree than would be done for peak flows. This is considered reasonable, since lower flows tend to be more directly related to drainage area than peak flows.

Table A11 - Peak Discharge Values Used in Frequency Analysis

Water Year	Wellsville	Portageville	Canaseraga	Jones Bridge	Avon	Rochester
1909	-	26,300	-	-	-	-
1910	-	30,200	-	-	-	-
1911	-	12,600	1,880	-	-	-
1912	-	22,700	4,900	-	-	-
1913	-	42,800	-	-	-	-
1914	-	23,200	-	-	-	-
1915	-	21,400	-	-	-	-
1916	-	44,400	6,600	-	-	-
1917	5,020	20,100	3,180	-	-	-
1918	13,100	29,500	3,790	-	-	-
1919	13,900	32,800	6,540	-	-	-
1920	8,810	39,700	3,950	-	-	-
1921	3,810	18,100	1,270	-	-	-
1922	4,230	12,600	3,500	-	-	-
1923	6,010	21,900	3,570	-	-	-
1924	8,320	17,600	1,830	-	-	-
1925	8,140	17,500	3,240	-	-	-
1926	3,530	14,800	2,100	-	-	-
1927	6,090	15,800	2,600	-	-	-
1928	7,600	42,700	6,900	-	-	-
1929	6,800	26,700	6,150	-	-	-
1930	4,710	20,500	1,850	-	-	-
1931	3,020	11,600	2,400	-	-	-
1932	3,970	14,200	3,350	-	-	-
1933	3,410	17,200	3,160	-	-	-
1934	4,710	15,200	2,360	-	-	-
1935	8,560	17,400	8,390	-	-	-
1936	8,550	25,500	4,240	-	-	-
1937	6,640	18,100	2,830	-	-	-
1938	7,120	17,200	4,420	-	-	-
1939	7,180	28,400	4,860	-	-	-
1940	8,530	26,500	9,110	-	-	-
1941	7,200	29,400	5,860	-	-	-
1942	11,200	32,300	8,400	-	-	-
1943	8,290	27,400	7,560	-	-	-
1944	4,810	15,200	4,490	-	-	-
1945	8,390	24,600	6,370	-	-	-
1946	17,900	25,200	4,260	-	-	-
1947	10,600	28,300	4,910	-	-	-
1948	13,300	24,100	6,350	-	-	-
1949	2,690	9,660	1,680	-	-	-
1950	13,900	35,800	7,170	-	-	-
1951	23,300	35,800	6,150	-	-	-
1952	7,500	23,200	3,630	-	-	-
1953	8,750	21,000	3,790	10,800	-	17,100
1954	5,360	15,400	5,240	13,800	-	17,500

Table A11 - Peak Discharge Values Used in Frequency Analysis (Cont'd)

Water Year	Wellsville	Portageville	Canaseraga	Jones Bridge	Avon	Rochester
1955	6,730	20,700	3,990	12,800	-	19,100
1956	16,900	43,300	4,500	11,900	15,600	24,300
1957	8,240	19,700	2,970	11,600	12,400	17,000
1958	7,950	19,300	2,910	10,700	10,800	14,900
1959	19,500	37,600	6,000	12,100	9,720	17,700
1960	12,800	27,800	5,170	10,400	9,820	25,800
1961	14,400	30,200	8,230	9,220	9,620	15,400
1962	3,590	12,000	1,570	9,800	8,130	11,900
1963	6,990	24,500	2,770	10,500	10,200	21,500
1964	19,200	39,400	4,370	11,000	12,400	16,600
1965	3,280	11,500	1,440	8,540	8,060	19,300
1966	5,930	14,900	2,950	8,360	8,090	13,900
1967	7,180	47,300	4,510	7,310	8,200	11,200
1968	6,160	17,900	1,750	8,600	7,710	12,500
1969	4,360	13,600	-	8,900	8,140	16,600
1970	5,820	17,800	-	7,490	6,980	13,400
1971	7,840	18,600	2,920	8,380	9,440	17,800
1972	41,000	90,000	9,600	17,800	16,500	29,600
1973	9,200	35,900	3,370	6,920	11,500	18,000
1974	5,210	15,700	2,460	8,040	8,200	15,300
1975	7,360	25,300	2,390	7,900	9,260	18,000
1976	8,100	28,600	3,800	9,980	10,200	22,400
1977	8,020	25,100	-	10,400	11,500	17,500
1978	6,600	24,600	-	10,300	10,400	17,100
1979	7,320	23,700	-	9,500	11,100	21,700
1980	5,540	14,900	-	8,620	8,930	24,300
1981	5,920	22,300	-	9,500	9,200	20,300
1982	15,800	24,000	-	10,300	10,200	23,200
1983	3,220	10,700	-	9,240	8,880	13,800
1984	9,680	38,700	-	10,500	10,700	28,200

NOTE: Discharges are in cfs.

Table A12a- Discharge-Frequency Curves

Discharges in CFS

Expected Probability In %	Rochester	Chili-Henrietta	Avon	Geneseo	Portageville	Filmore	Belfast	Belvidere
0.2	40,200	39,400	24,400	20,600	90,300	68,700	61,400	47,600
0.5	36,400	35,700	22,000	18,600	76,000	57,800	51,700	40,100
1.0	33,600	32,900	20,200	17,200	66,200	50,400	45,000	34,900
2.0	31,000	30,400	18,600	15,800	57,300	43,600	39,000	30,200
4.0	28,400	27,800	17,100	14,500	49,100	37,400	33,400	25,900
10.0	24,900	24,400	14,900	12,900	39,100	29,800	26,600	20,600
20.0	22,200	21,700	13,600	11,600	31,900	24,300	21,700	16,800
50.0	17,900	17,500	11,300	9,720	22,300	17,000	15,200	11,800
80.0	14,600	14,300	9,600	8,290	16,000	12,200	10,900	8,400
90.0	13,100	12,800	8,900	7,670	13,600	10,400	9,200	7,200
95.0	12,000	11,800	8,400	7,220	11,900	9,100	8,100	6,300
99.0	10,000	9,800	7,500	6,470	9,500	7,200	6,400	5,000

Table A12b - Discharge-Frequency Curves

Discharges in CFS

Expected Probability In %	Belmont	Scio	Wellsville (Reach A)	Wellsville (Reach B)	Stannards	Shongo
0.2	65,800	50,200	47,100	36,400	35,700	30,700
0.5	51,900	39,500	37,100	28,600	28,200	24,200
1.0	42,900	32,700	30,700	23,700	23,300	20,000
2.0	35,200	26,800	25,200	19,500	19,100	16,400
4.0	28,500	21,700	20,400	15,700	15,500	13,300
10.0	21,000	16,000	15,000	11,600	11,400	9,800
20.0	16,100	12,200	11,500	8,900	8,700	7,500
50.0	10,100	7,700	7,200	5,600	5,500	4,700
80.0	6,700	5,100	4,800	3,700	3,600	3,100
90.0	5,500	4,200	3,900	3,020	2,970	2,500
95.0	4,700	3,600	3,300	2,580	2,540	2,200
99.0	3,600	2,7[illegible]	2,500	1,960	1,930	1,700

Table A13a - Discharge-Frequency Curves (Improved Conditions)

Discharges in CFS

Expected Probability In %	Belmont	Scio	Wellsville (Reach A)	Wellsville (Reach B)	Stannards	Shongo
0.2	7,000	5,300	5,000	3,900	3,800	30,700
0.5	5,900	4,500	4,200	3,300	3,200	24,200
1.0	5,600	4,300	4,000	3,100	3,000	20,000
2.0	5,600	4,300	4,000	3,100	3,000	16,400
4.0	5,600	4,300	4,000	3,100	3,000	13,000
10.0	5,600	4,300	4,000	3,100	3,000	9,800
20.0	5,600	4,300	4,000	3,100	3,000	7,500
50.0	5,600	4,300	4,000	3,100	3,000	4,700
80.0	5,600	4,300	4,000	3,100	3,000	3,100
90.0	5,500	4,200	3,900	3,020	3,000	2,500
95.0	4,700	3,600	3,300	2,580	2,540	2,200
99.0	3,600	2,705	2,500	1,960	1,930	1,700

Table A13b- Discharge-Frequency Curves (Improved Conditions)

Discharges in CFS

Expected Probability In %	Portageville	Filmore	Belfast	Belvidere
0.2	62,000	47,100	42,200	32,700
0.5	49,000	37,200	33,320	25,800
1.0	41,000	31,100	27,880	21,600
2.0	33,000	25,100	22,400	17,400
4.0	26,500	20,100	18,000	14,000
10.0	19,000	14,400	12,900	10,000
20.0	15,000	11,400	10,200	7,900
50.0	10,000	7,600	6,800	5,270
80.0	10,000	7,600	6,800	5,270
90.0	10,000	7,600	6,800	5,270
95.0	10,000	7,600	6,800	5,270
99.0	9,500	7,200	6,400	5,000

Table A14 Pertinent Data for Considered Modifications to Mount Morris Dam

Spillway: 760 ft NGVD
Height: 215 ft
Top of Dam: 790 ft NGVD

EXISTING FLOOD CONTROL STORAGE: 302000 acre - ft (5.24 inches of runoff)
STORAGE WITH 15 ft GATES: 346000 acre - ft
INCREASE STORAGE: 44000 acre - ft - .76 inches of runoff
STORAGE WITH 30 ft GATES: 406000 acre - ft
INCREASE STORAGE: 104000 acre ft - 1.81 inches of runoff

Drainage Area at Mount Morris	1080 Sq. Mi.
Drainage Area at Index point 1	2467 Sq. Mi.
Drainage Area at Index point 3	1978 Sq. Mi.
Drainage Area at Index point 4	1424 Sq. Mi.

In order to provide a range of economic values, two general "with project" conditions were analyzed: addition of 15-ft gates atop the Mount Morris Dam spillway, and addition of 30-ft gates. Frequency curves were developed for each reach for each case for use in determining damages under "with project" conditions, and applied as described in Section A8.

The method used to determine the with-project condition curves proportioned the increased storage at the reservoir to the index points by drainage area. For example, the .76 inches of increased storage attributable to the addition of the 15 ft gates would be the equivalent of .58 inches of storage at index point #4 (.76 X 1,080 divided by 1424). The equivalent additional storage at each index point was used to determine the discharge-frequency curves under with-project conditions. The rainfall-frequency for a 96 hour storm duration was used to determine the associated rainfall for a selected exceedence frequency. The equivalent storage was subtracted from this value and the exceedence frequency for the modified rainfall then read from the rainfall-frequency curve. The modified exceedence frequency was used to determine the discharge from the discharge-frequency curve. This discharge was then plotted at the original exceedence frequency. This was then repeated for a number of exceedence frequencies.

Example: The 100-year rainfall amount (96 hours) is 4.80 inches. The equivalent additional storage (for the 15 ft gates) at Index Point 4 is .58 inches (4.80 - .58 = 4.22 inches). For a rainfall of 4.22 inches, the exceedence frequency is 3% (33 years). From the discharge frequency curve, the 3% exceedence frequency has a discharge of 15,000 CFS, which is plotted at the 1% exceedence frequency for with-project conditions.

A8 NON-AGRICULTURAL FLOOD DAMAGES

Stage-discharge (rating) curves were developed using July 1987 survey data at each of the index points and normal depth calculations for all reaches except 2, 4, and 13. For these reaches, the rating curves were taken from the August 1973 "Genesee River Basin - Report of Flood, Tropical Storm Agnes, 21-23 June 1972." These curves are shown in Figures A11 through A28.

Expected annual non-agricultural flood damages were calculated for each of the reaches described in Table A2. The stage-damage curves, presented in Figures A29 through A46, were taken from the above mentioned Report of Flood, and updated to October 1987 by price level. The curves for the Wellsville reaches were adjusted to account for levee work performed since the original curves were developed.

Discharge-frequency curves for the Upper Genesee Basin were taken from the Genesee River Basin Reconnaissance Report. The discharge-frequency curves for the Lower Genesee River Basin were developed as described in Section A7.

The combination of these three types of curves, through integration within the Hydrologic Engineering Center's Expected Annual Damage (EAD) Program, yields expected annual flood damages for each reach of the Genesee River. The results of the expected annual flood damage computations for each reach can be found in Table A15. The 'with-project' expected annual flood damages were computed using the improved conditions discharge-frequency curves presented in Section A6. The results of the damage computations as well as the resulting benefits of the plans are presented in Table A16. These numbers will differ slightly from those presented in the Economic Appendix because of the effects of affluence. Also included in the Economic Appendix is the analysis of agricultural flood damages.

A9 NON-OVERFLOW SECTION

The increased height of the non-overflow section of the Mt. Morris dam had to be determined, based on the reduced weir length caused by the tainter gates on the spillway. The PMF analysis resulted in a discharge of 442,000 CFS. Using the weir equation with a coefficient of 3.9 and a weir length of 420 feet, the required height is 41.8 feet. Adding 1.7 feet for runup above the freeboard reference level, the height of the non-overflow section is 43.8 feet, resulting in an elevation of 803.5 feet USC&GS. The present non-overflow section is at 790.0 feet, resulting in a required increase of approximately 13 feet.

Table A15 - Damage Summary of the Genesee River Basin
(Non-Agricultural)

REACH	INITIAL DAMAGE STAGE (ft.)	INITIAL DAMAGE APPROX. FREQ. (Yr)	AVERAGE ANNUAL DAMAGES
Lower Basin	(2)		
ROCHESTER 1	Average annual damages will be negligible in this reach.		
CHILI-HENRIETTA 2	516.0	2	$481,000
AVON 3	529.0	2	401,000
GENESEO 4	560.0	20	122,000
Upper Basin			
MT. MORRIS 5	This reach includes the area known as Letchworth State Park and is mainly a deep gorge that contains Mount Morris Lake.		
Portageville 6	1102.0	2	13,000
Fillmore 7	1165.0	2	50,000
Belfast 8	1261.0	2	87,000

Table A15 - Damage Summary of the Genesee River Basin (Cont'd)
(Non-Agricultural)

REACH	INITIAL DAMAGE STAGE (ft.)	INITIAL DAMAGE APPROX. FREQ. (Yr)	AVERAGE ANNUAL DAMAGES
BELVIDERE 9	1320.0	2	9,000
BELMONT 10	1366.0	2	44,000
SCIO 11	1446.5	2	83,000
WELLSVILLE 12		For Wellsville damage summary, see below	
STANNARDS 13	1511.7	2	32,000
SHONGO 14	1529.5	2	14,000
WELLSVILLE AREA	(2)		
GENESEE RIVER			
12, G-1	1479.5	5	33,000
12, G-2	1495.0	-	0
12, G-3	1493.0	100	24,000
12, G-4	1496.0	100	34,000
12, G-5A	1495.0	50	14,000
12, G-5B	1495.3	100	2,000
12, G-6	1497.5	50	44,000
GRAND TOTAL			$1,487,000

(1) Average Annual Damages shown are at October 1987 price level.
(2) Stages are referenced to National Geodetic Vertical Datum of 1929.

TABLE A16 - Damage Summary of the Genesee River Basin
(Non-agricultural)

Improved Conditions - Plan 10A - 15 FOOT GATE SCENARIO

REACH	AVERAGE ANNUAL DAMAGES ($)	
	Existing	Improved
ROCHESTER 1	NEGLIGIBLE	
CHILI-HENIETTA 2	481,000	304,000
AVON 3	401,000	239,000
GENESEO 4	122,000	12,000
TOTAL	1,004,000	555,000

Improved Conditions - Plan 10A - 30 FOOT GATE SCENARIO

REACH	AVERAGE ANNUAL DAMAGES ($)	
	Existing	Improved
ROCHESTER 1	NEGLIGIBLE	
CHILI-HENIETTA 2	481,000	127,000
AVON 3	401,000	113,000
GENESEO 4	122,000	0
TOTAL	1,004,000	240,000

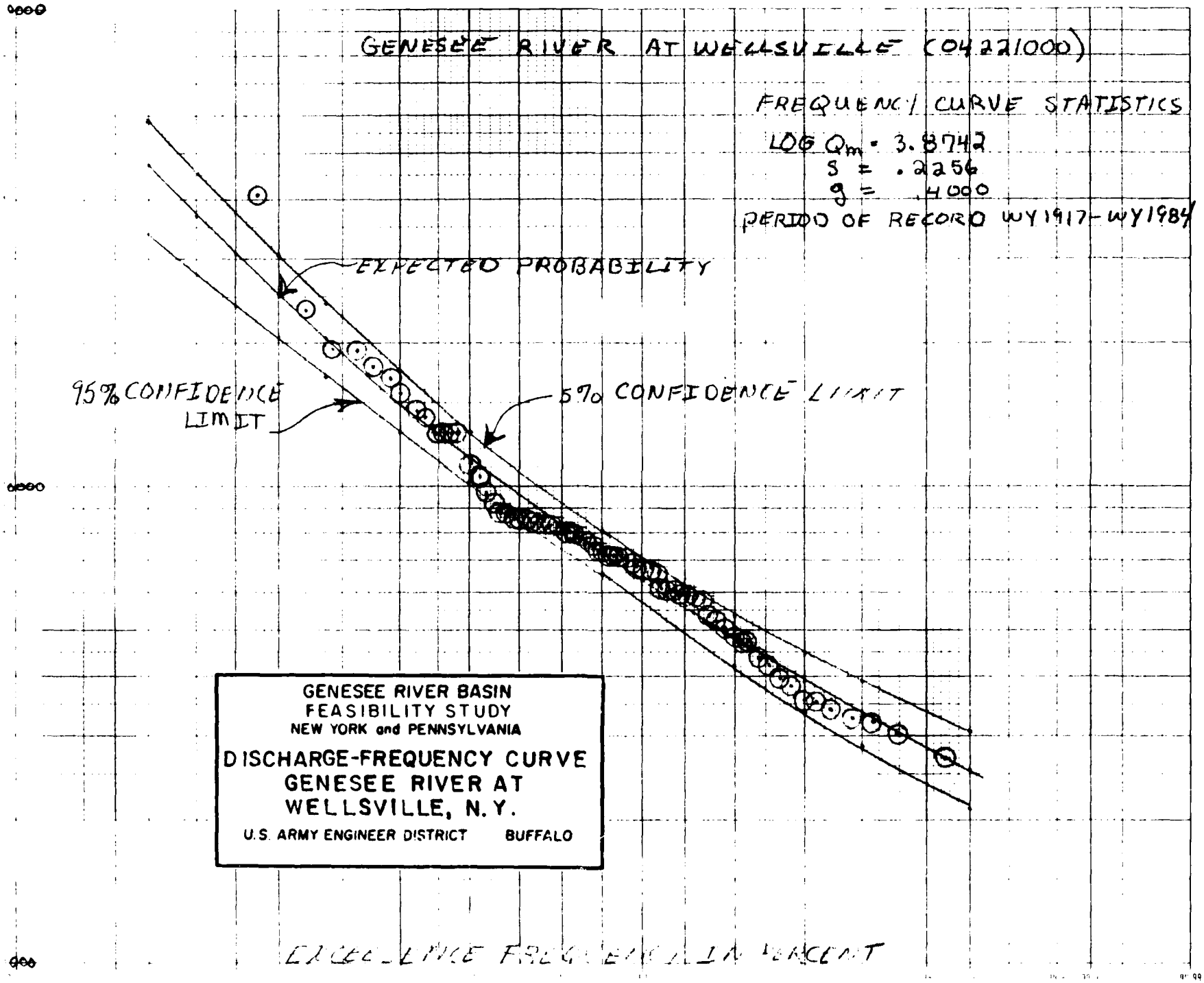

GENESEE RIVER AT WELLSVILLE (04221000)
FREQUENCY CURVE STATISTICS
LOG Qm = 3.8742
S = .2256
g = .4000
PERIOD OF RECORD WY1917-WY1984
EXPECTED PROBABILITY
95% CONFIDENCE LIMIT
5% CONFIDENCE LIMIT
DISCHARGE - CFS
EXCEEDANCE FREQUENCY IN PERCENT
GENESEE RIVER BASIN
FEASIBILITY STUDY
NEW YORK and PENNSYLVANIA
DISCHARGE-FREQUENCY CURVE
GENESEE RIVER AT
WELLSVILLE, N.Y.
U.S. ARMY ENGINEER DISTRICT BUFFALO

FIGURE A1

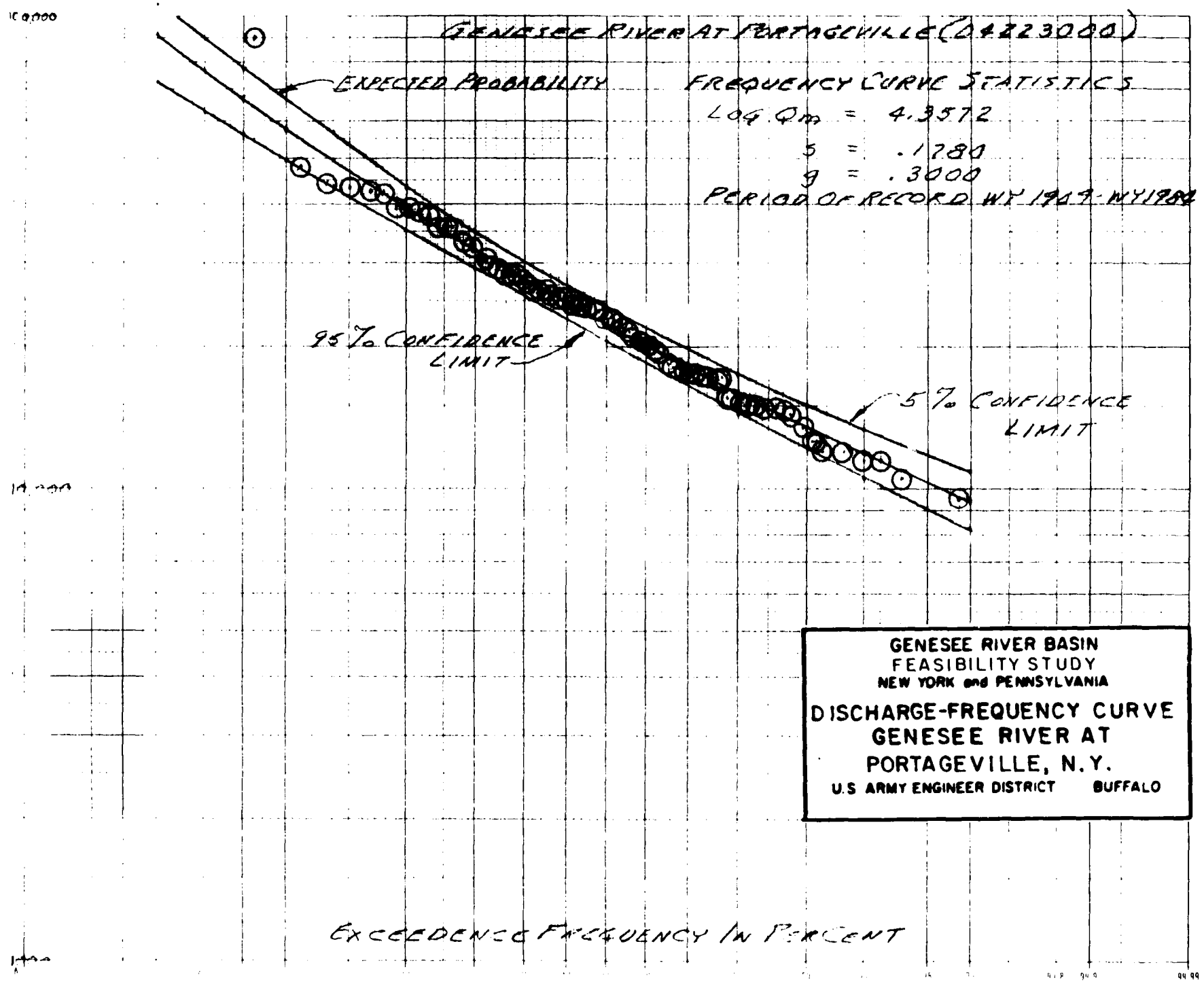
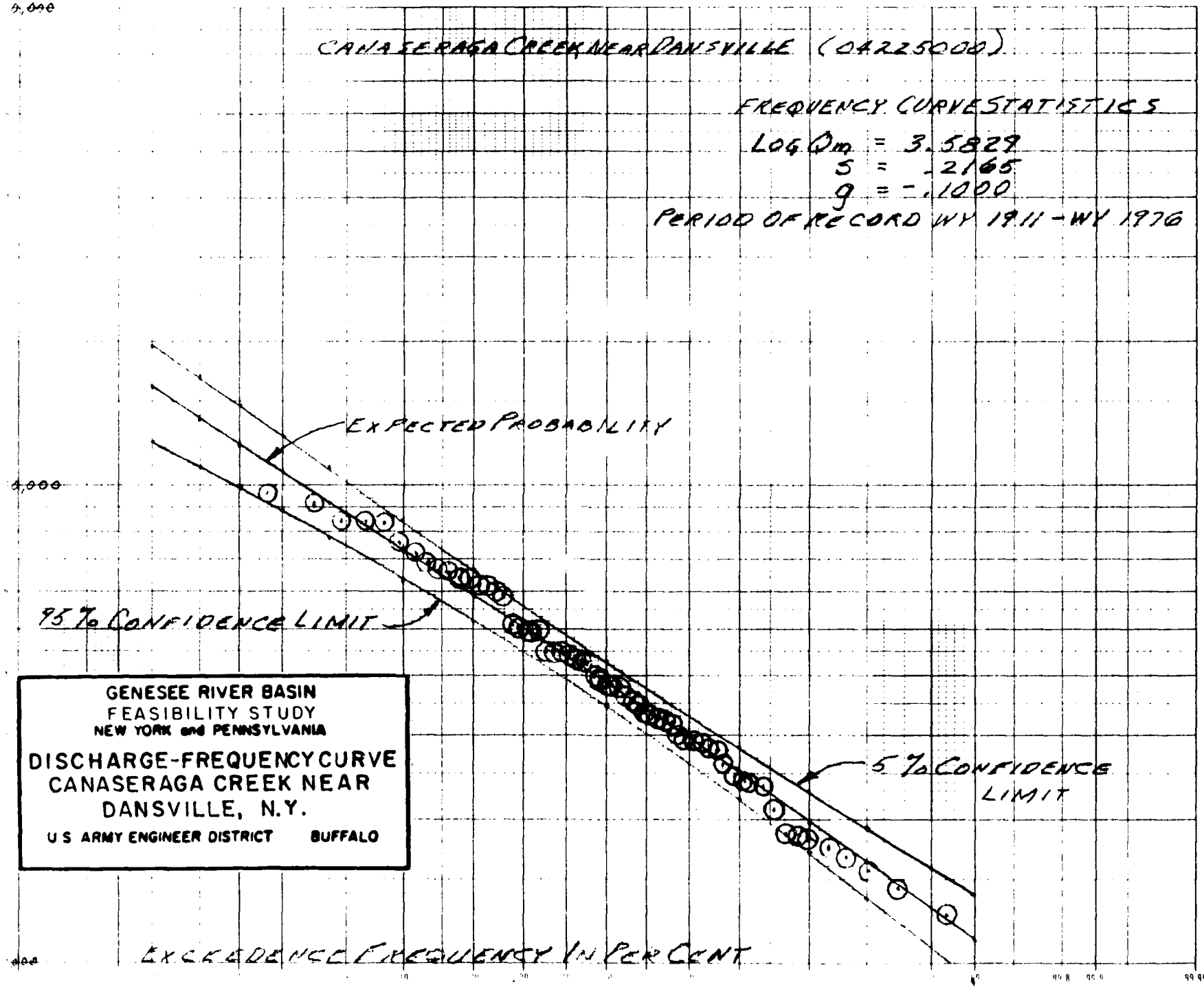

GENESEE RIVER AT PORTAGEVILLE (04223000)
EXPECTED PROBABILITY
FREQUENCY CURVE STATISTICS
Log Qm = 4.3572
S = .1780
G = .3000
PERIOD OF RECORD WY 1914-WY1982
95 % CONFIDENCE LIMIT
5 % CONFIDENCE LIMIT
DISCHARGE IN CFS
EXCEEDENCE FREQUENCY IN PERCENT
GENESEE RIVER BASIN
FEASIBILITY STUDY
NEW YORK and PENNSYLVANIA
DISCHARGE-FREQUENCY CURVE
GENESEE RIVER AT
PORTAGEVILLE, N.Y.
U.S ARMY ENGINEER DISTRICT BUFFALO

FIGURE A2

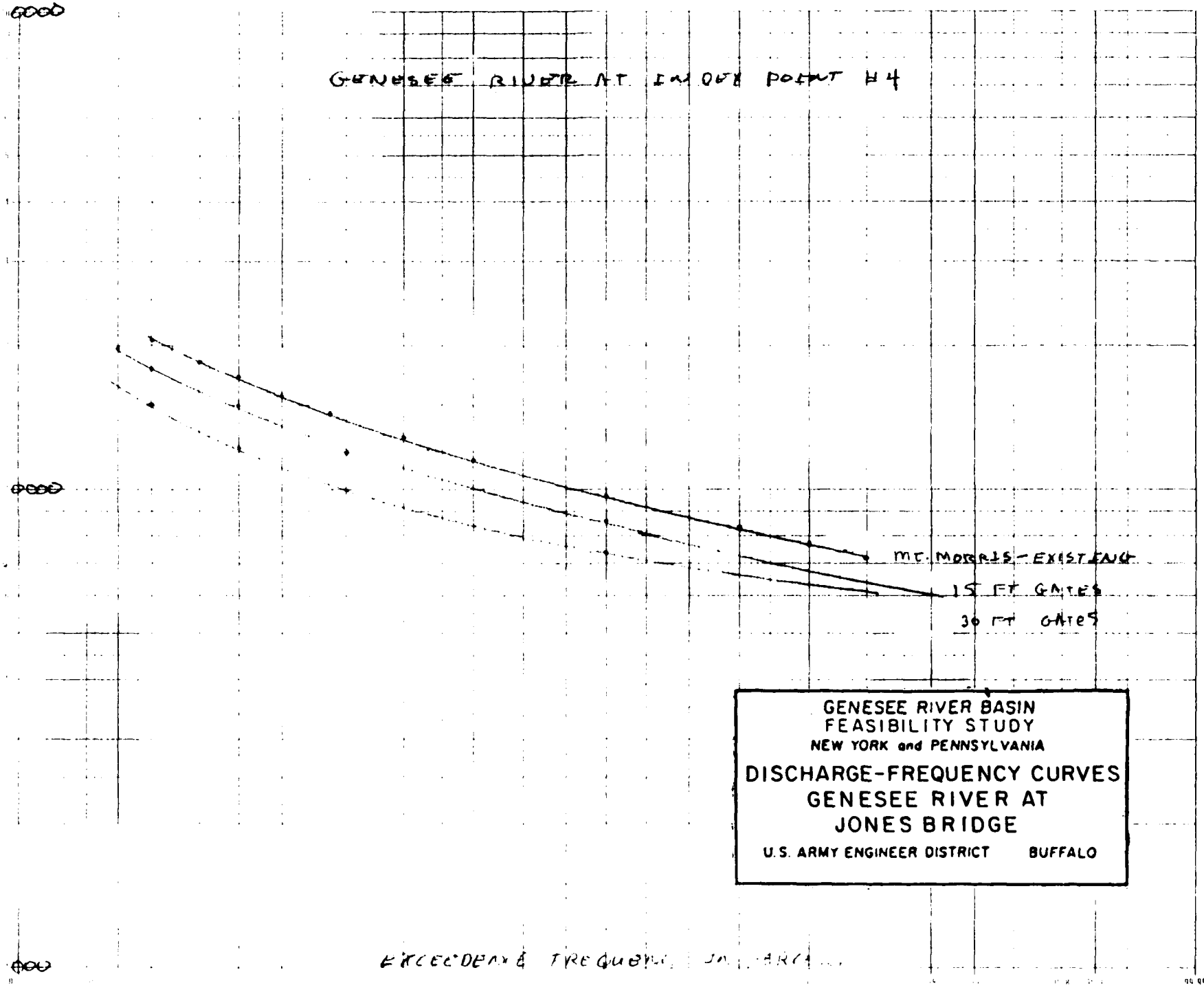


GENESEE RIVER BASIN
FEASIBILITY STUDY
NEW YORK and PENNSYLVANIA

DISCHARGE-FREQUENCY CURVE
CANASERAGA CREEK NEAR
DANSVILLE, N.Y.

U S ARMY ENGINEER DISTRICT BUFFALO

FIGURE A3



GENESEE RIVER BASIN
FEASIBILITY STUDY
NEW YORK and PENNSYLVANIA

DISCHARGE-FREQUENCY CURVES
GENESEE RIVER AT
JONES BRIDGE

U.S. ARMY ENGINEER DISTRICT BUFFALO

FIGURE A4

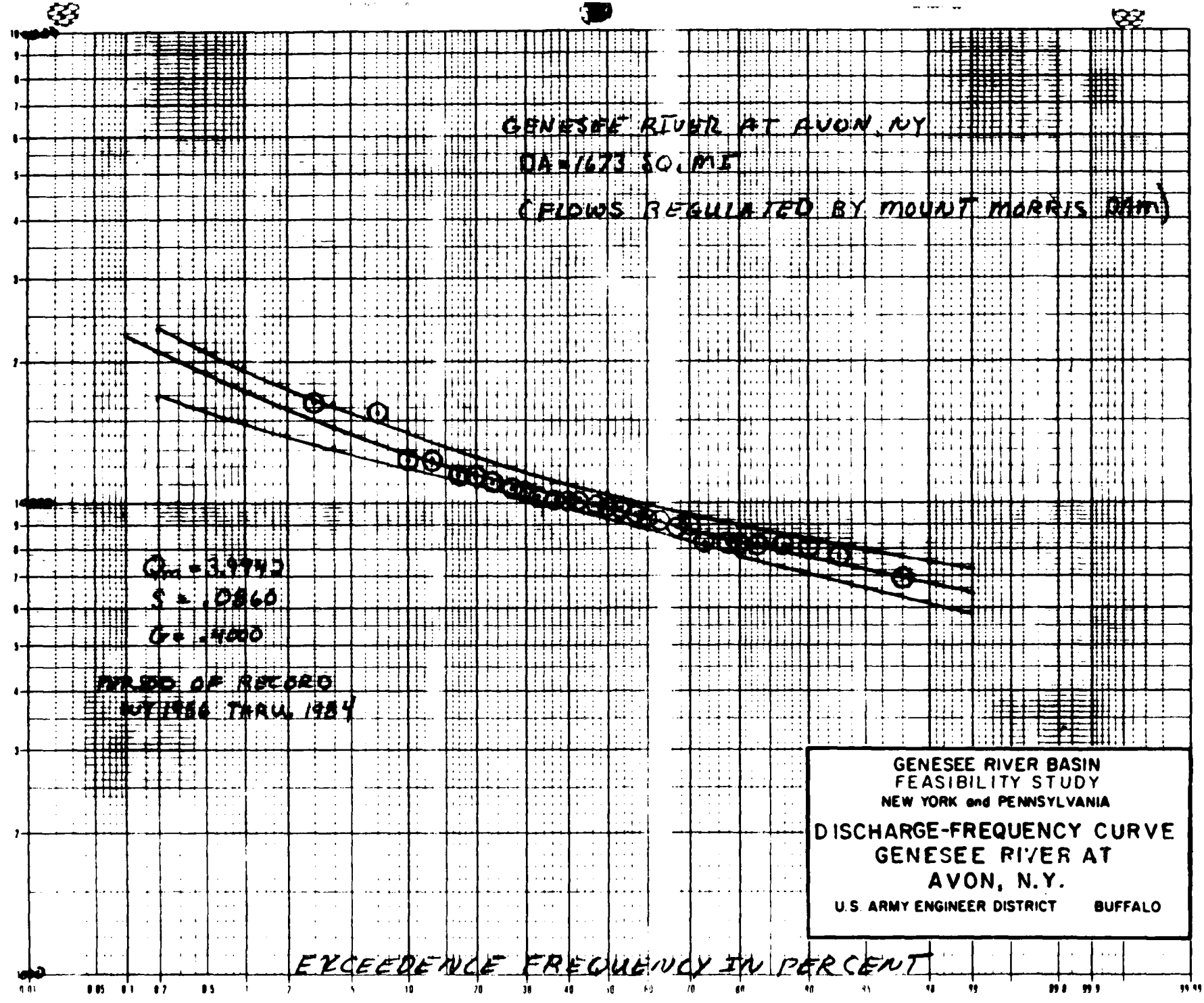
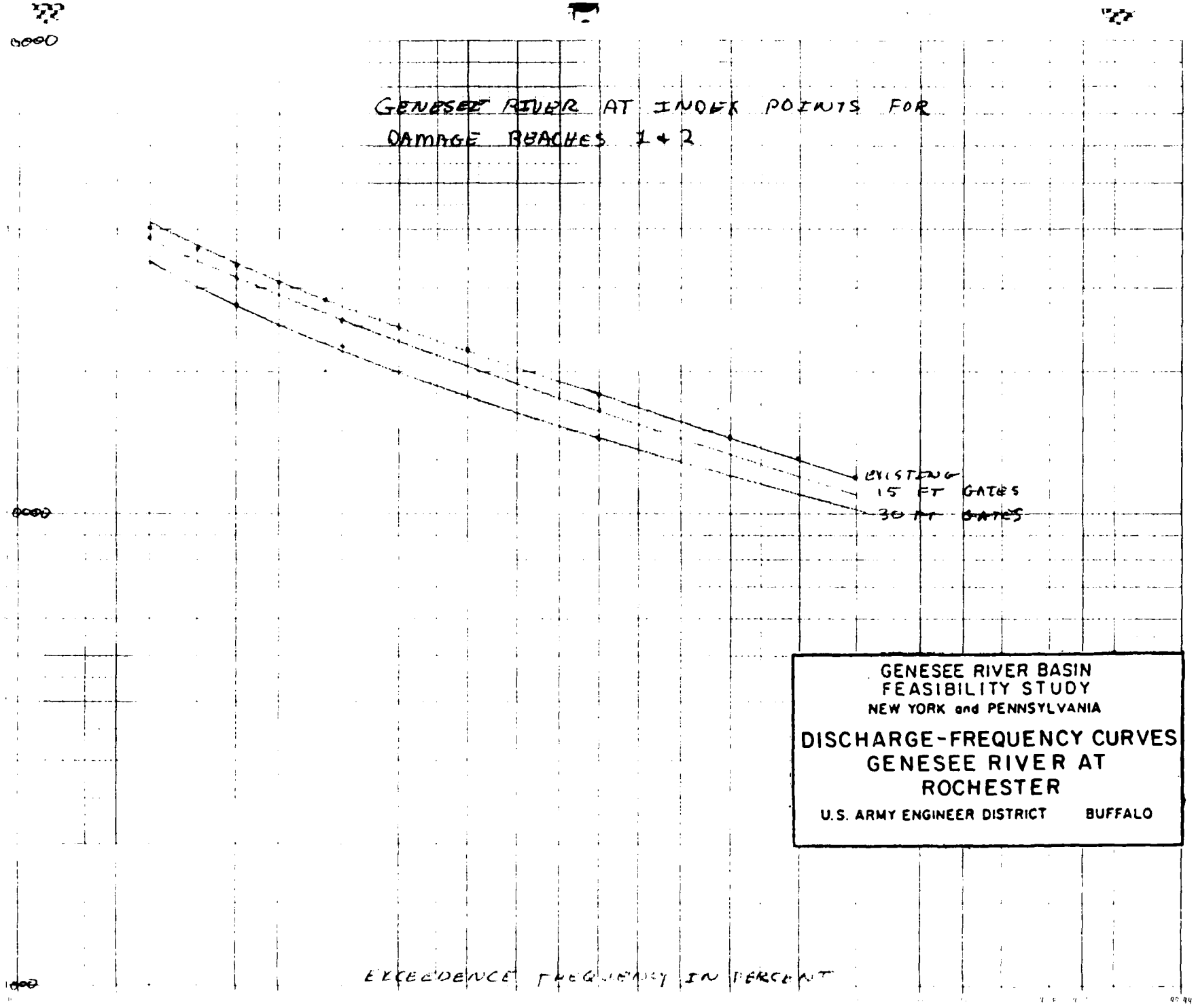

GENESEE RIVER AT AVON, NY
DA = 1673 SQ. MI
(FLOWS REGULATED BY MOUNT MORRIS DAM)
Qm = 3,994
S = .0860
G = .4000
PERIOD OF RECORD
OCT 1956 THRU 1984
DISCHARGE IN CFS
EXCEEDENCE FREQUENCY IN PERCENT
GENESEE RIVER BASIN
FEASIBILITY STUDY
NEW YORK and PENNSYLVANIA
DISCHARGE-FREQUENCY CURVE
GENESEE RIVER AT
AVON, N.Y.
U.S. ARMY ENGINEER DISTRICT BUFFALO

FIGURE A 5



GENESEE RIVER BASIN
FEASIBILITY STUDY
NEW YORK and PENNSYLVANIA

DISCHARGE-FREQUENCY CURVES
GENESEE RIVER AT
ROCHESTER

U.S. ARMY ENGINEER DISTRICT BUFFALO

FIGURE A6

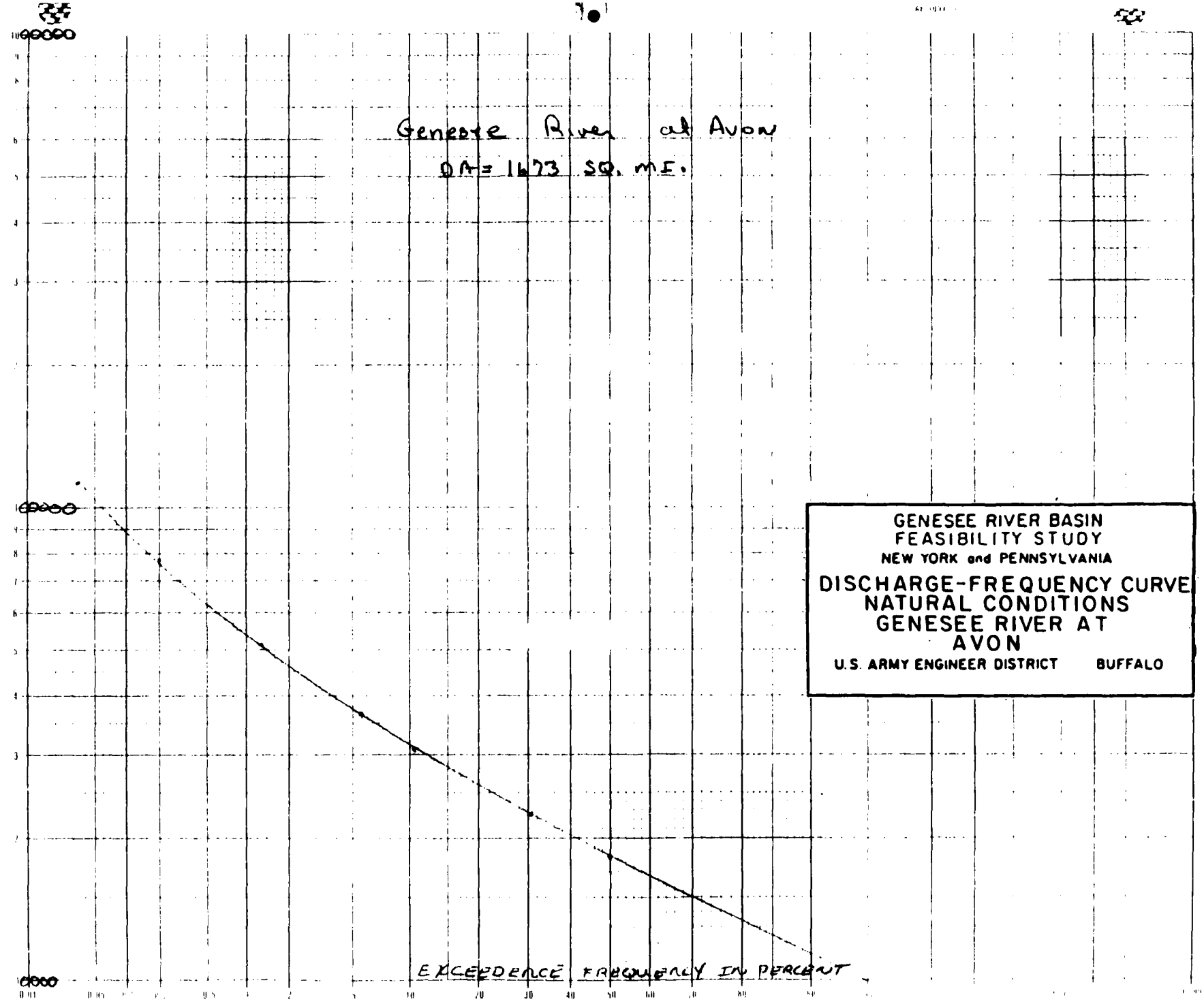

Genesee River at Avon
DA = 1673 SQ. M.E.
DISCHARGE IN CFS
EXCEEDENCE FREQUENCY IN PERCENT
GENESEE RIVER BASIN
FEASIBILITY STUDY
NEW YORK and PENNSYLVANIA
DISCHARGE-FREQUENCY CURVE
NATURAL CONDITIONS
GENESEE RIVER AT
AVON
U.S. ARMY ENGINEER DISTRICT BUFFALO

FIGURE A7

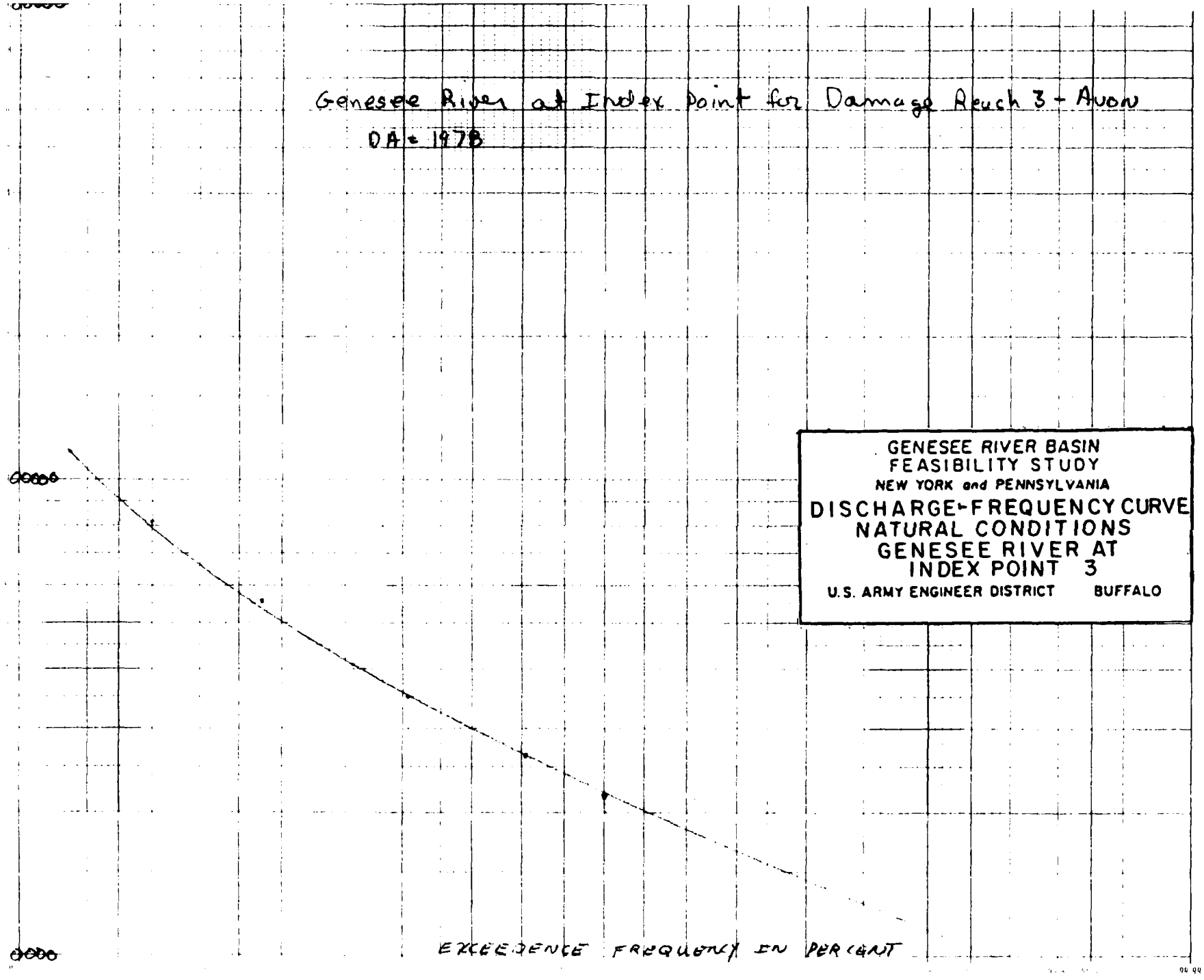

Genesee River at Index Point for Damage Reach 3 - Avon
DA = 1978
GENESEE RIVER BASIN
FEASIBILITY STUDY
NEW YORK and PENNSYLVANIA
DISCHARGE-FREQUENCY CURVE
NATURAL CONDITIONS
GENESEE RIVER AT
INDEX POINT 3
U.S. ARMY ENGINEER DISTRICT BUFFALO
EXCEEDENCE FREQUENCY IN PERCENT

FIGURE A8

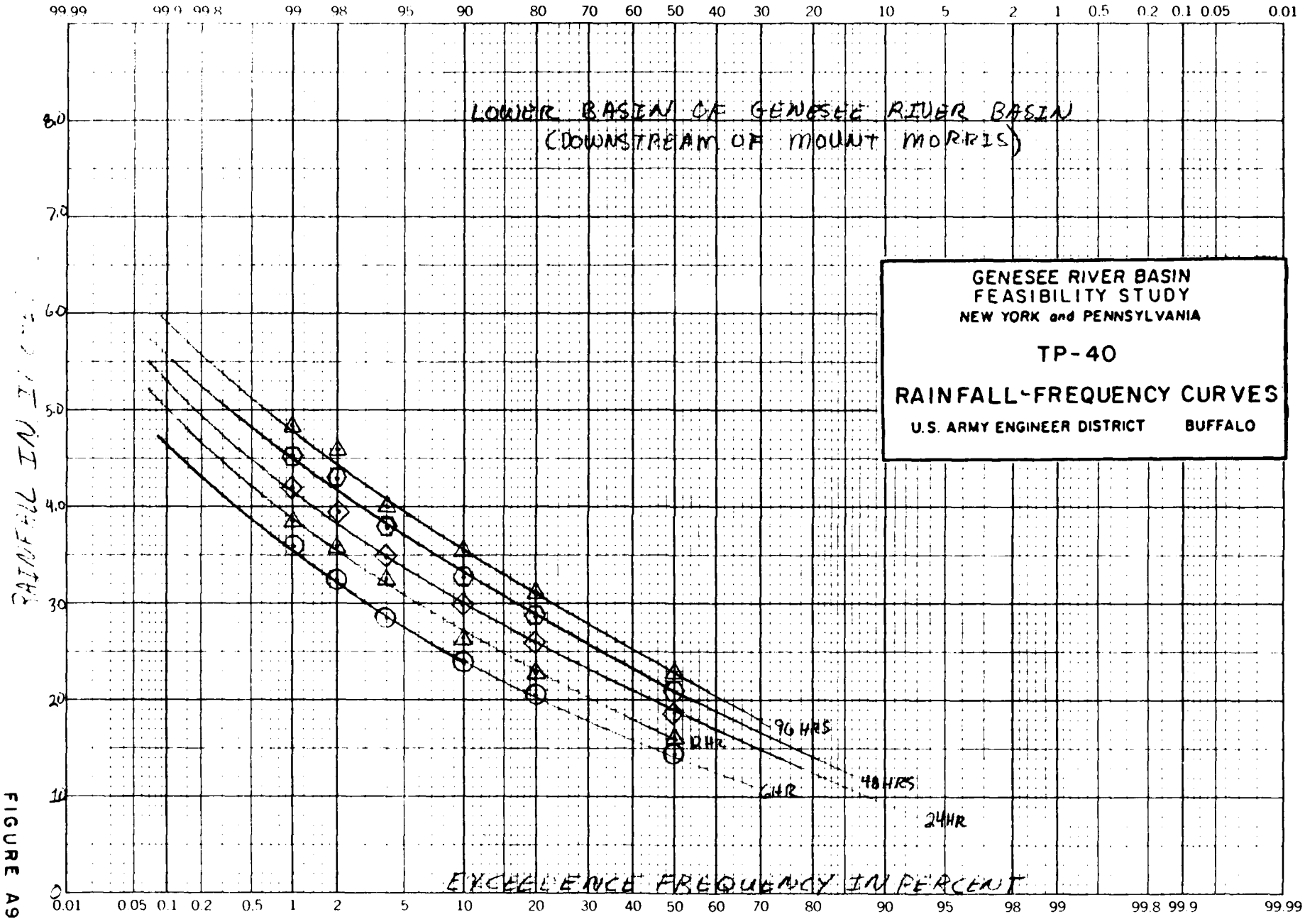

LOWER BASIN OF GENESEE RIVER BASIN
(DOWNSTREAM OF MOUNT MORRIS)
GENESEE RIVER BASIN
FEASIBILITY STUDY
NEW YORK and PENNSYLVANIA
TP-40
RAINFALL-FREQUENCY CURVES
U.S. ARMY ENGINEER DISTRICT BUFFALO
96 HRS
48 HRS
24HR
12HR
6HR
RAINFALL IN INCHES
EXCEEDENCE FREQUENCY IN PERCENT
99.99 99.9 99.8 99 98 95 90 80 70 60 50 40 30 20 10 5 2 1 0.5 0.2 0.1 0.05 0.01
0.01 0.05 0.1 0.2 0.5 1 2 5 10 20 30 40 50 60 70 80 90 95 98 99 99.8 99.9 99.99
0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0

FIGURE A9

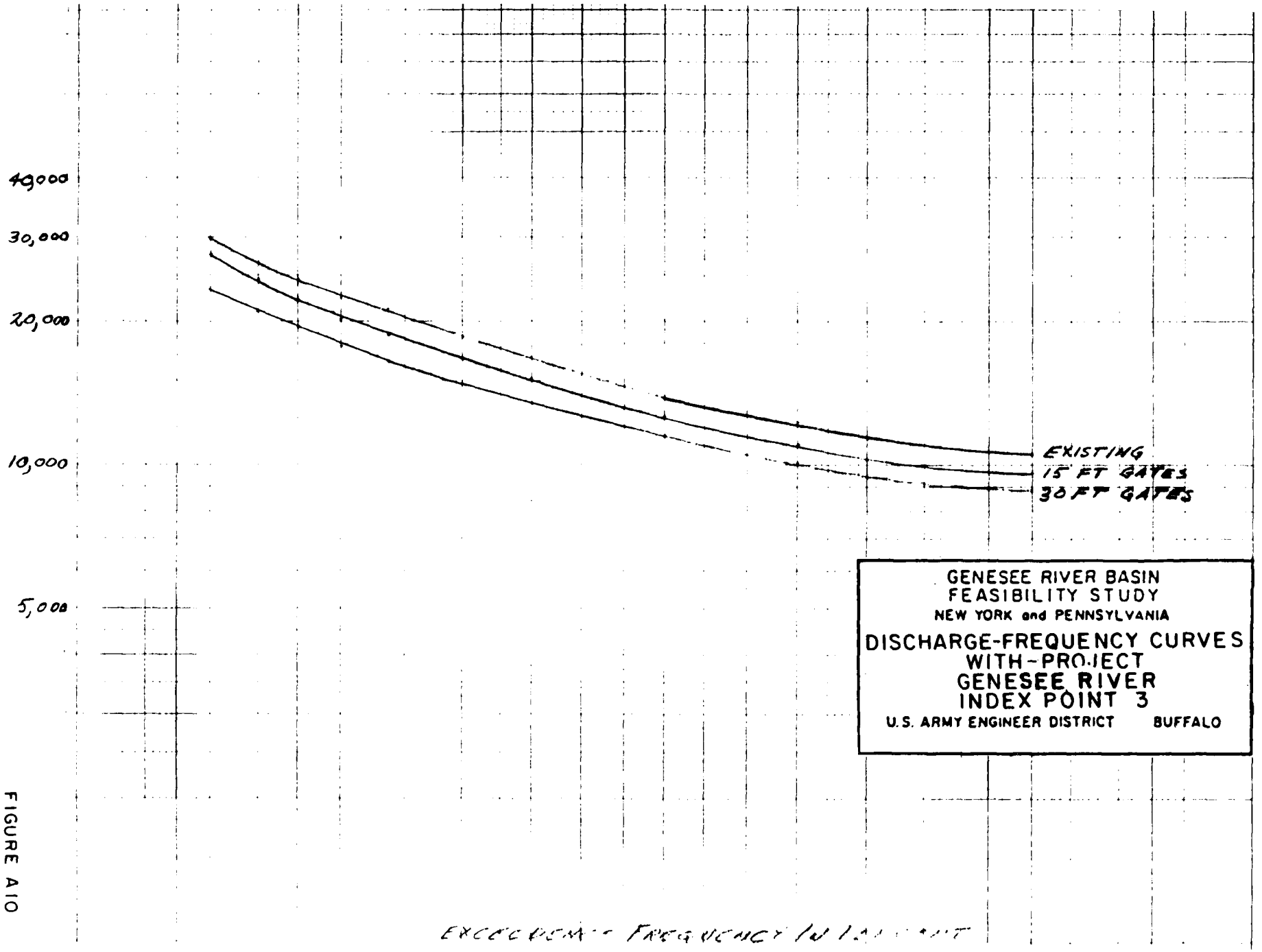
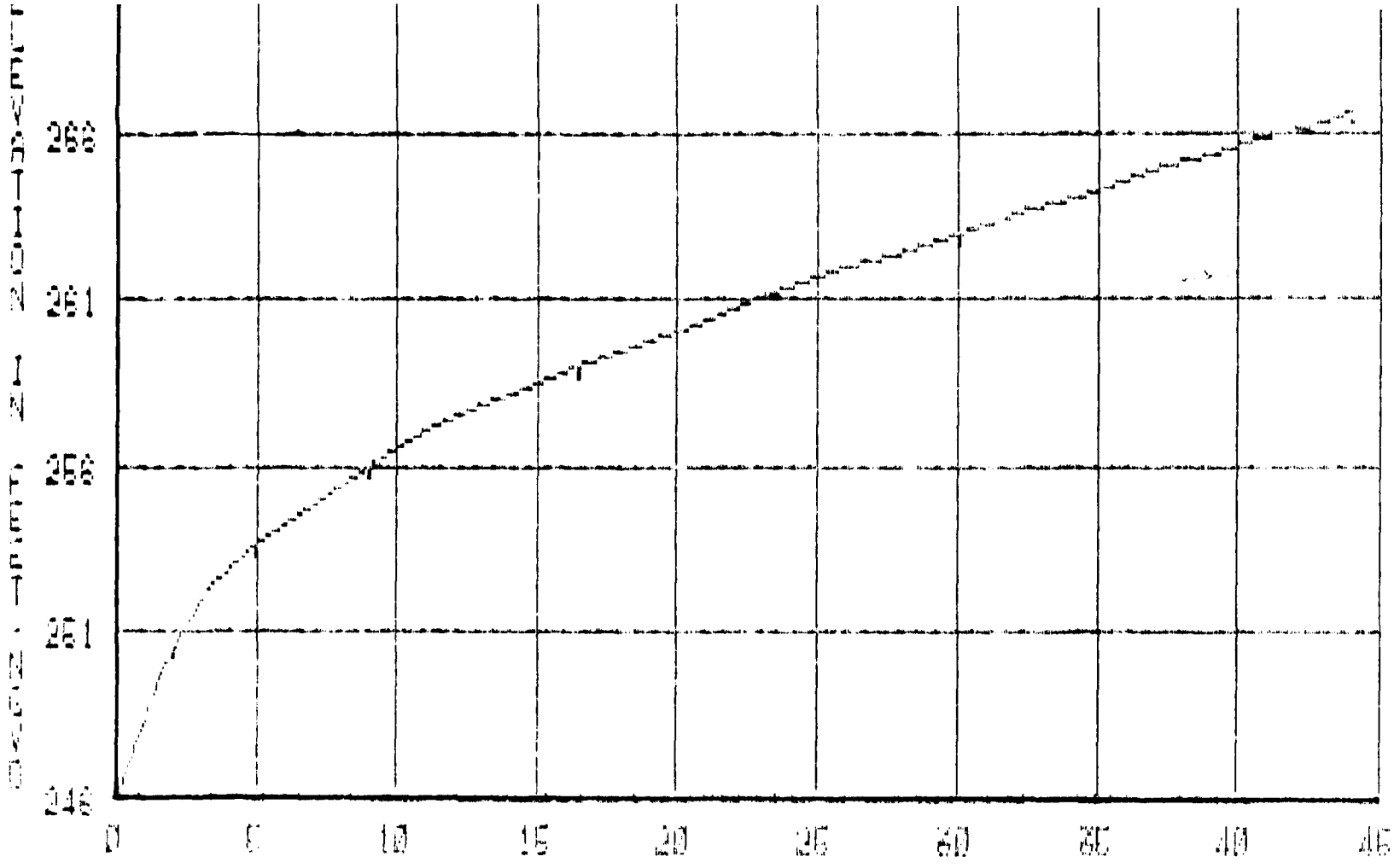

40,000
30,000
20,000
10,000
5,000
FLOW IN CFS
EXISTING
15 FT GATES
30 FT GATES
GENESEE RIVER BASIN
FEASIBILITY STUDY
NEW YORK and PENNSYLVANIA
DISCHARGE-FREQUENCY CURVES
WITH-PROJECT
GENESEE RIVER
INDEX POINT 3
U.S. ARMY ENGINEER DISTRICT BUFFALO

FIGURE A10



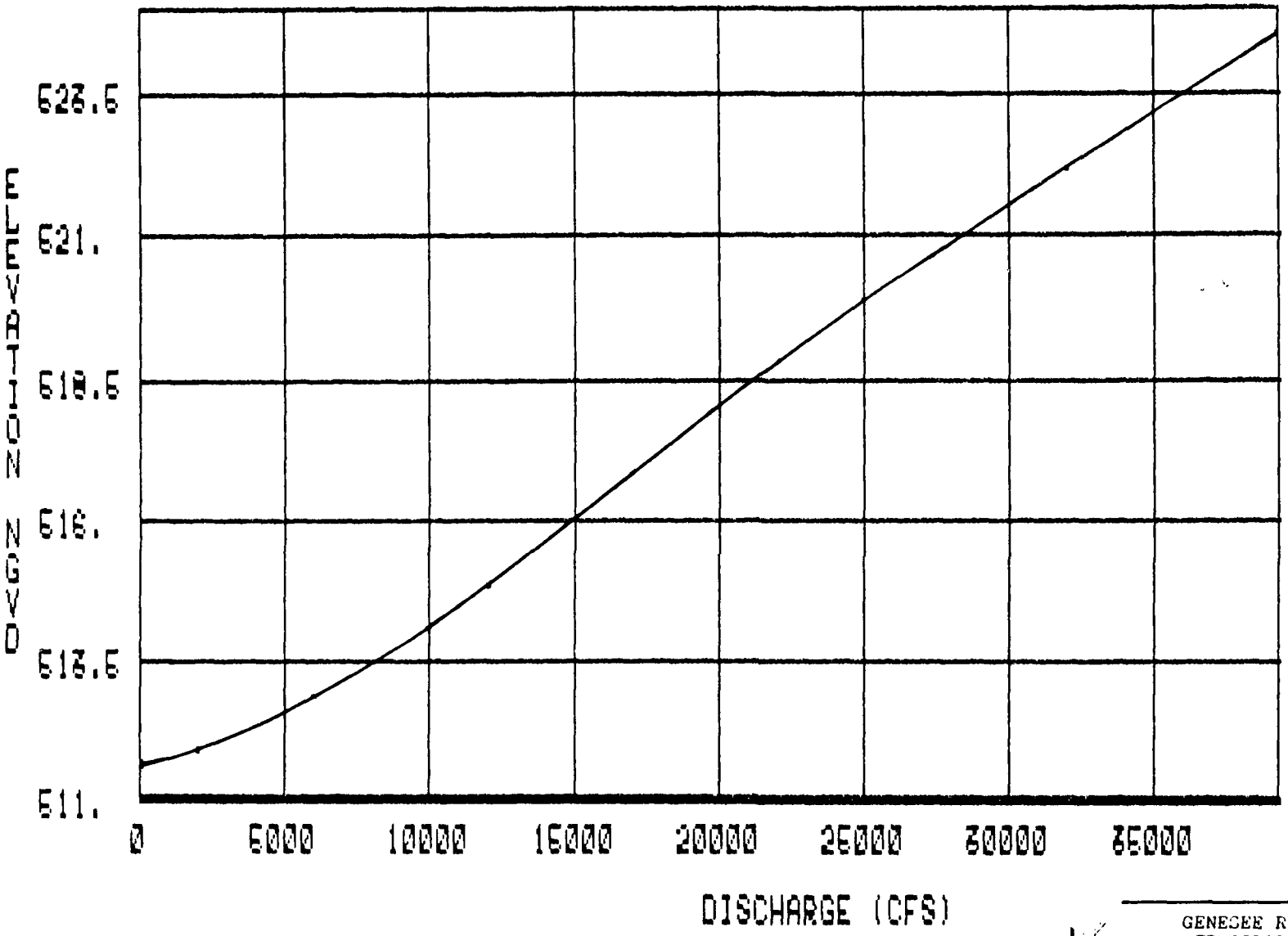
GENESEE RIVER BASIN
FEASIBILITY STUDY
NEW YORK and PENNSYLVANIA

RATING CURVE

REACH I-ROCHESTER

U.S. ARMY ENGINEER DISTRICT BUFFALO

FIGURE A11



NOTE:

INDEX POINT AT RIVER MILE 14.1,
CHILI, NY.

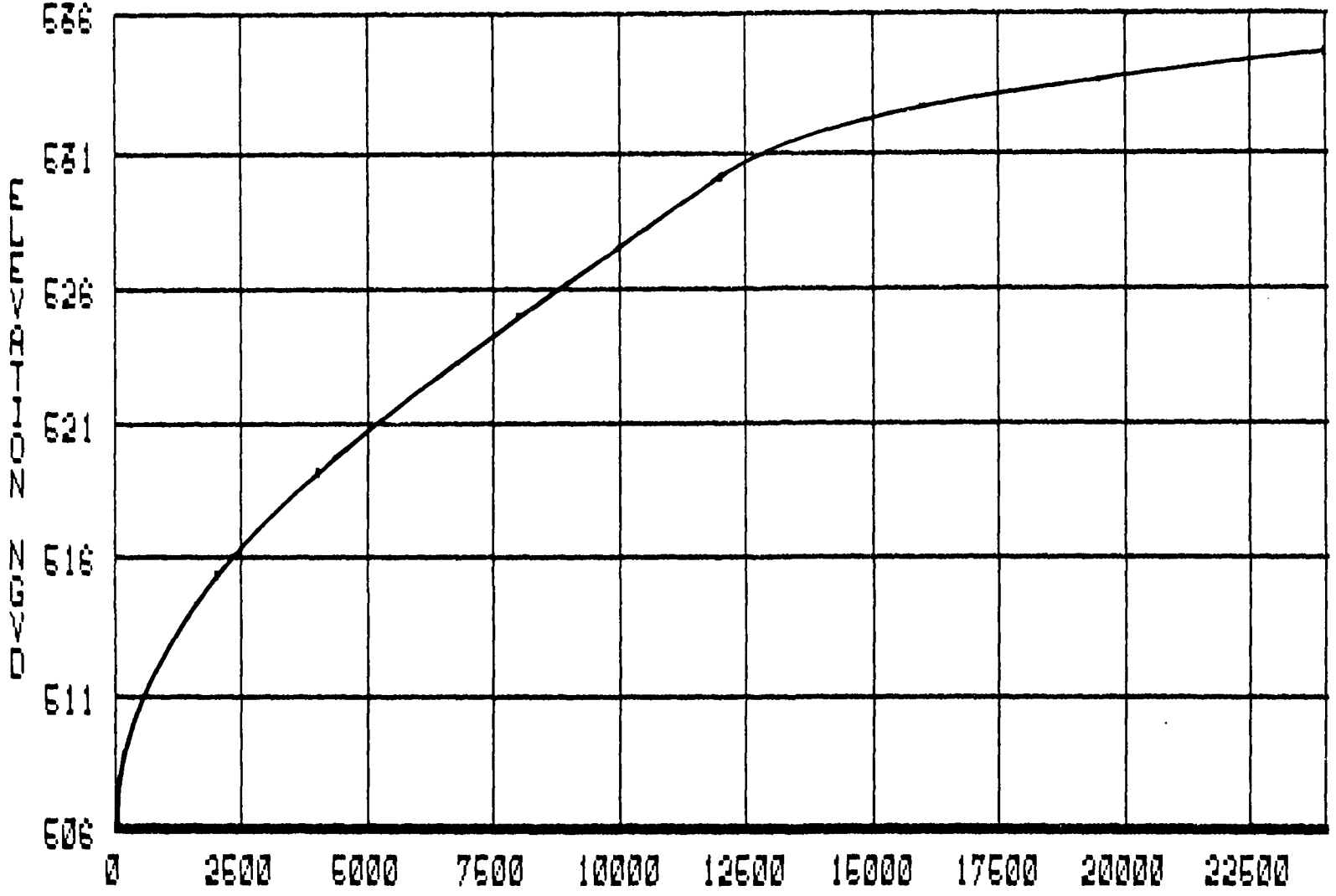
GENESEE RIVER BASIN
FEASIBILITY STUDY
New York and Pennsylvania

RATING CURVE

REACH 2

U.S.Army Engineer District Buffalo

FIGURE A12



NOTE:
INDEX POINT AT RIVER MILE, 26.6,
AVON, NY.

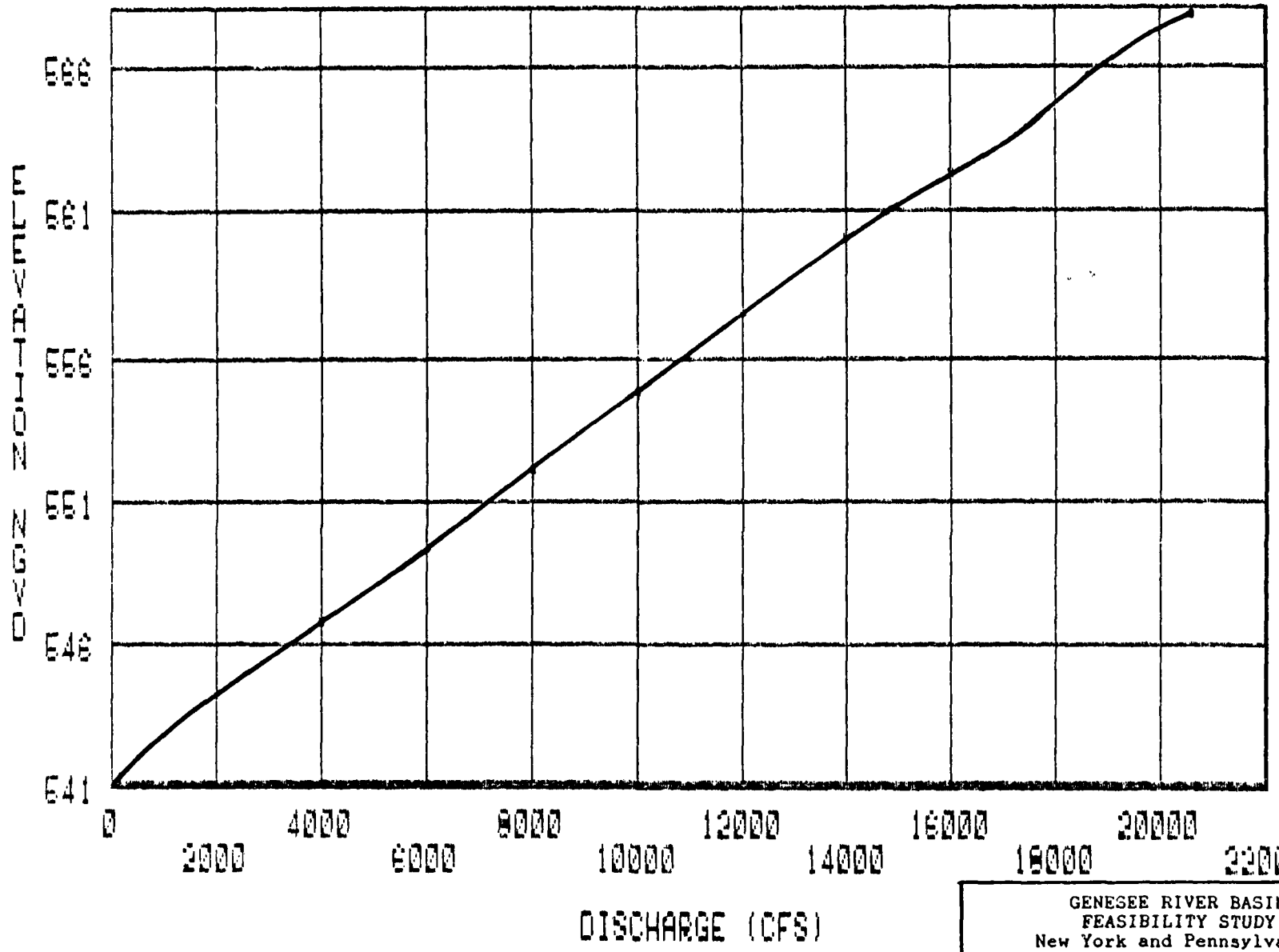
GENESEE RIVER BASIN
FEASIBILITY STUDY
New York and Pennsylvania

RATING CURVE

REACH 3

U.S.Army Engineer District Buffalo

FIGURE A13



NOTE:
INDEX POINT AT RIVER MILE 61.2,
GENESEO, NY.

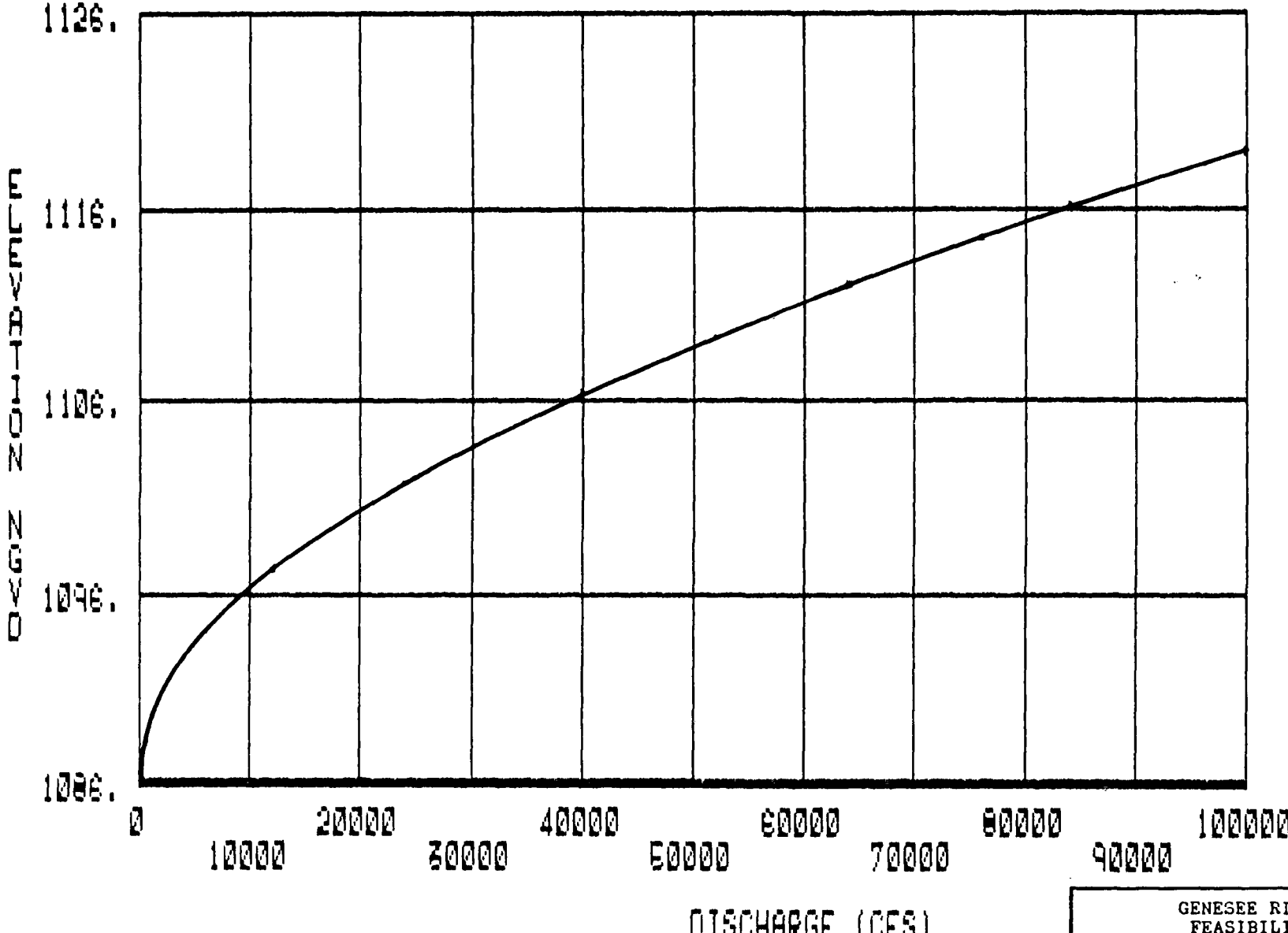
GENESEE RIVER BASIN
FEASIBILITY STUDY
New York and Pennsylvania

RATING CURVE

REACH 4

U.S.Army Engineer District Buffalo

FIGURE A14



NOTE:
INDEX POINT AT RIVER MILE 86.7,
PORTAGEVILLE, NY.

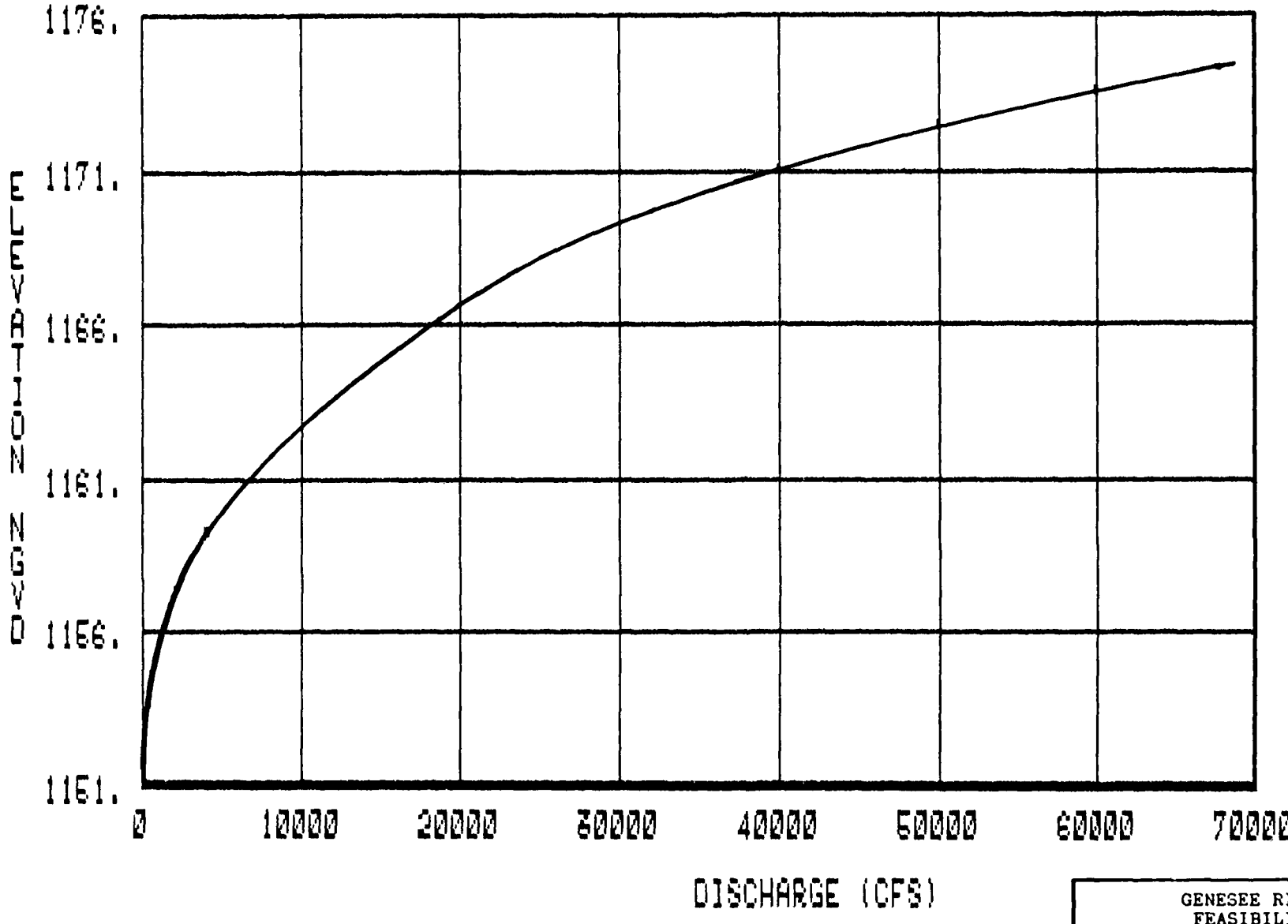
GENESEE RIVER BASIN
FEASIBILITY STUDY
New York and Pennsylvania

RATING CURVE

REACH 6

U.S.Army Engineer District Buffalo

FIGURE A15



NOTE:
INDEX POINT AT RIVER MILE 99.9,
FILLMORE, NY.

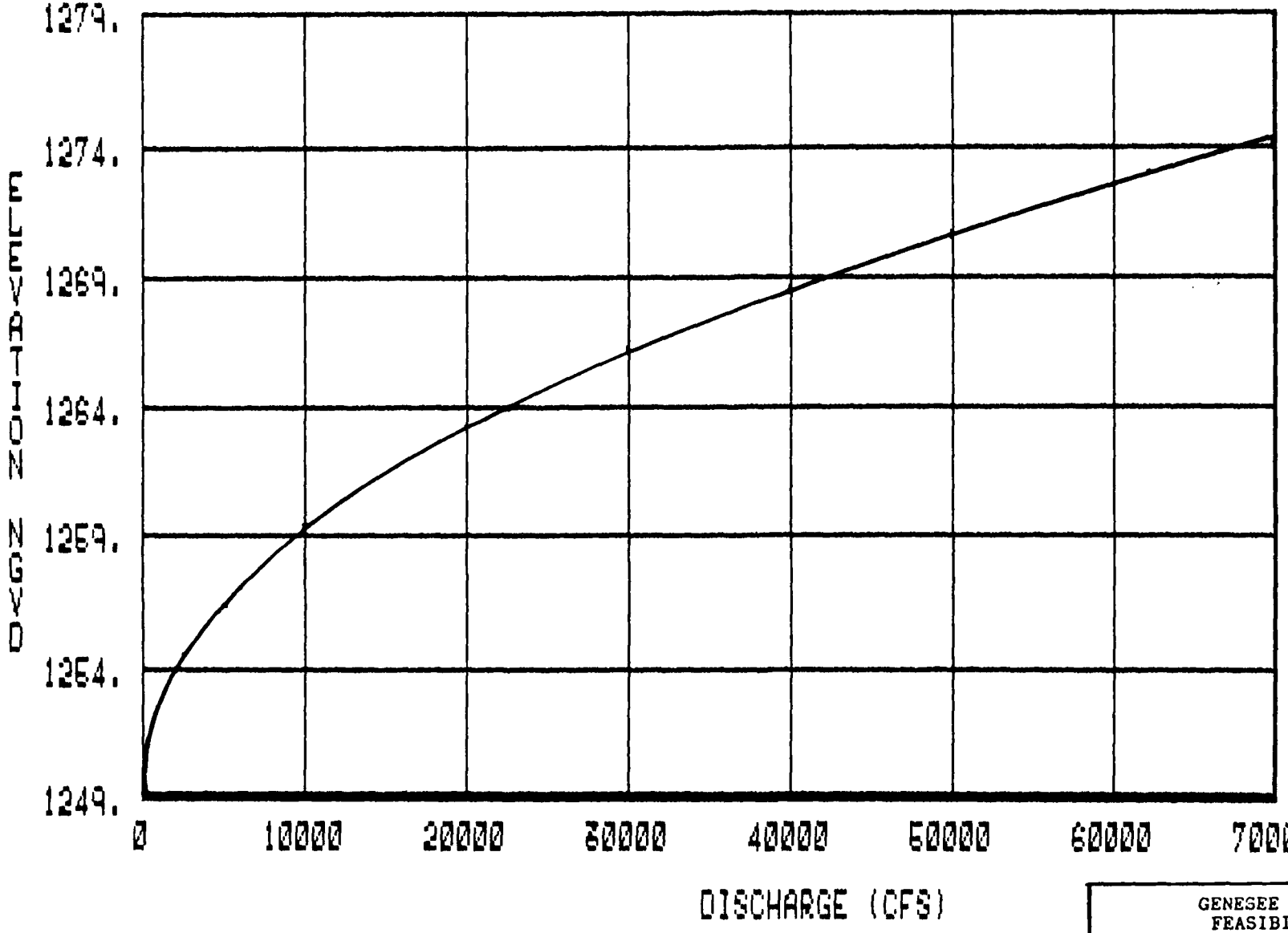
GENESEE RIVER BASIN
FEASIBILITY STUDY
New York and Pennsylvania

RATING CURVE

REACH 7

U.S.Army Engineer District Buffalo

FIGURE A16



NOTE:
INDEX POINT AT RIVER MILE 113.5,
BELFAST, NY.

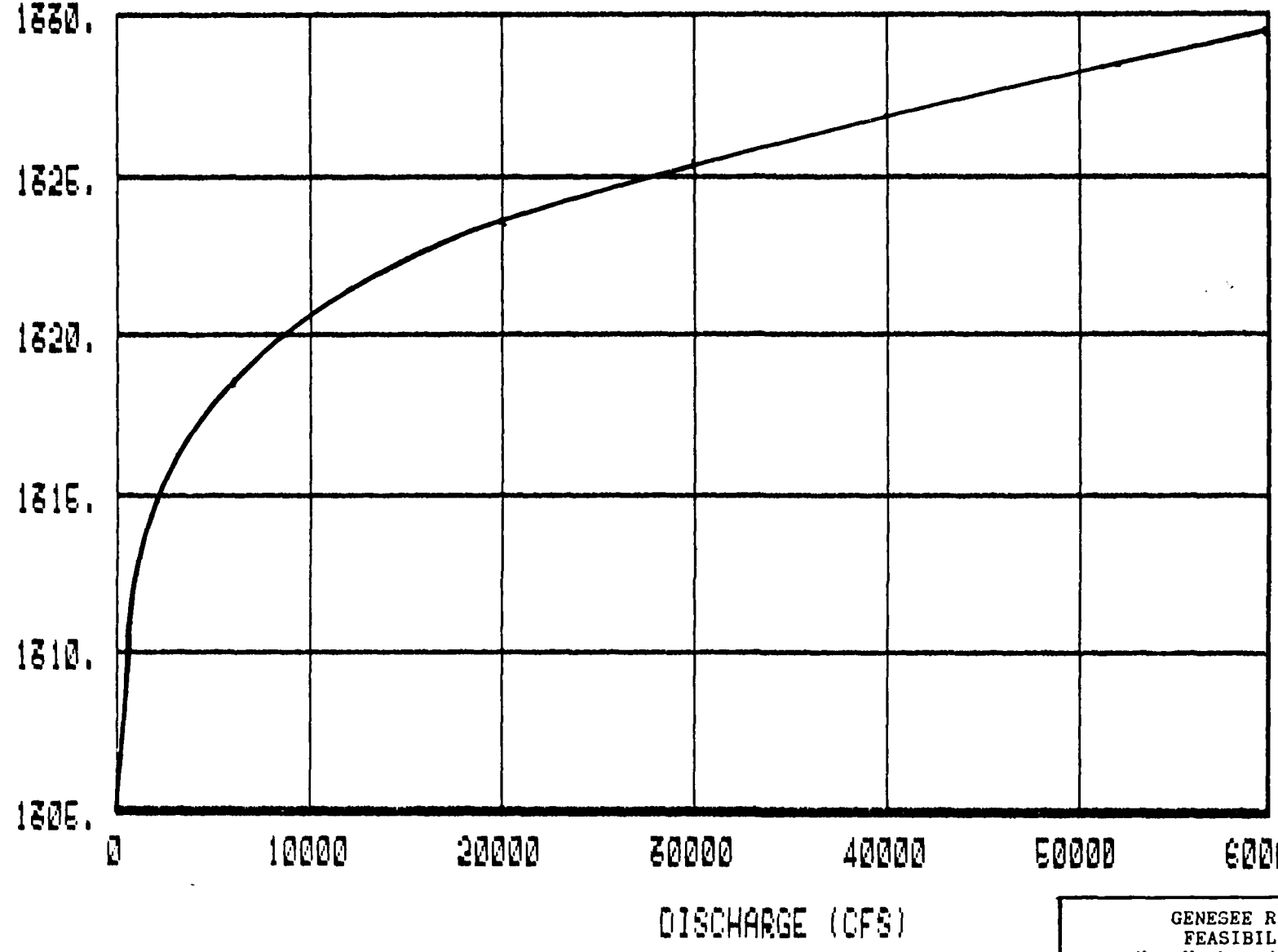
GENESEE RIVER BASIN
FEASIBILITY STUDY
New York and Pennsylvania

RATING CURVE

REACH 8

U.S.Army Engineer District Buffalo

FIGURE A17



GENESEE RIVER BASIN
FEASIBILITY STUDY
New York and Pennsylvania

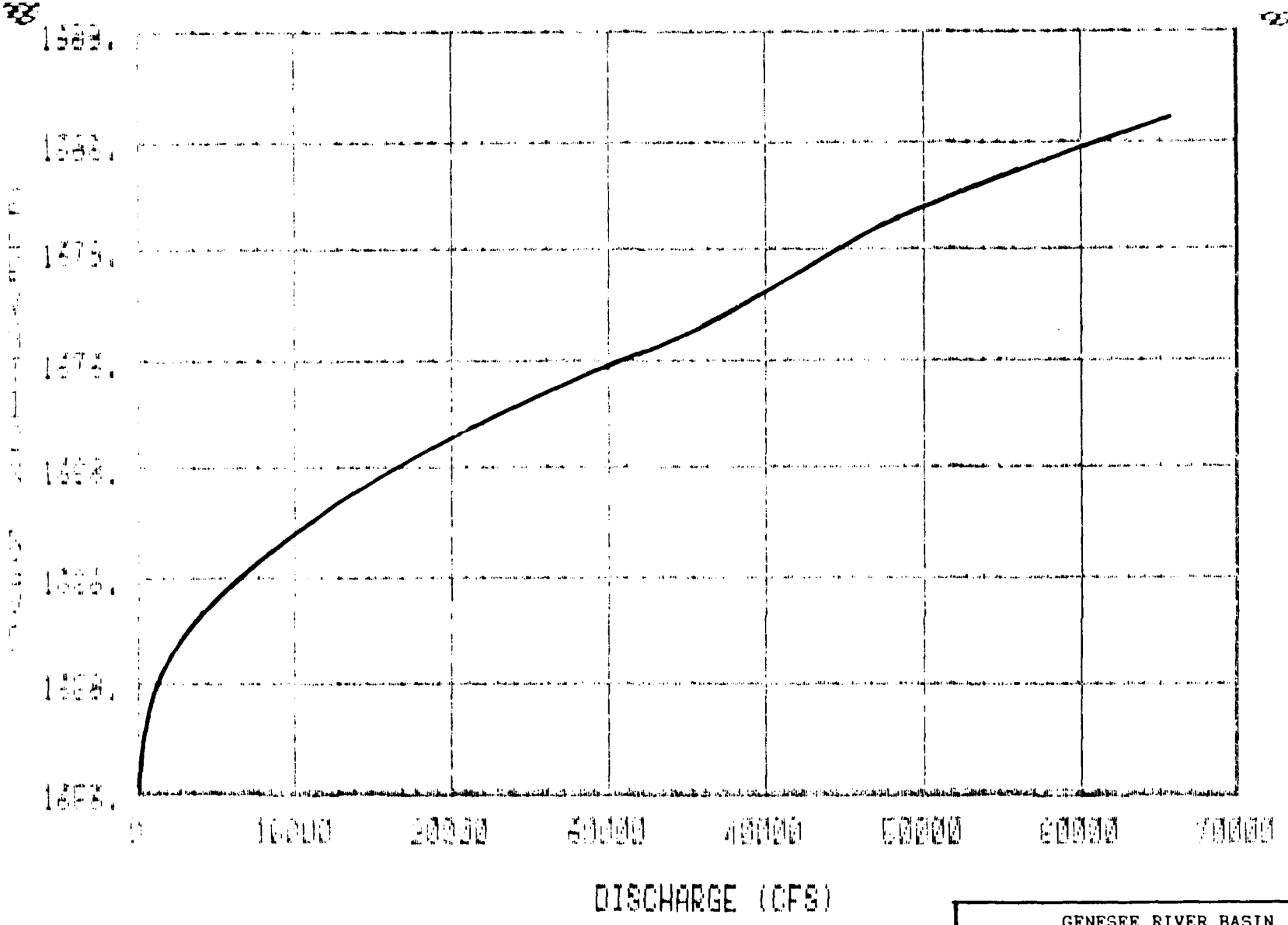
RATING CURVE

REACH 9

U.S.Army Engineer District Buffalo

NOTE:
INDEX POINT AT RIVER MILE 123.0,
BELVIDERE, NY.

FIGURE A18

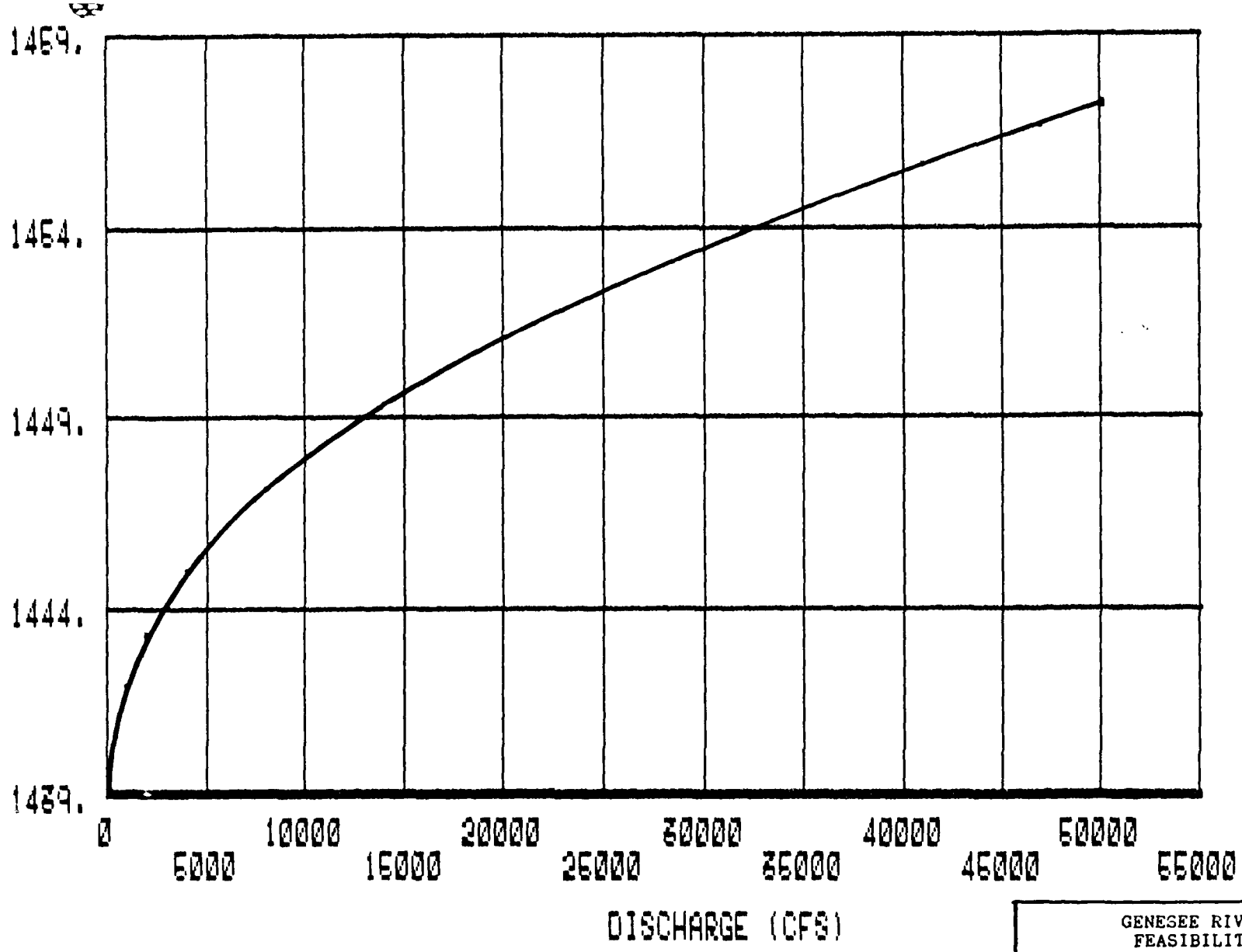


NOTE:
INDEX POINT AT RIVER MILE 126.7,
BELMONT, NY.

GENESEE RIVER BASIN
FEASIBILITY STUDY
New York and Pennsylvania

RATING CURVE
REACH 10
U.S.Army Engineer District Buffalo

FIGURE A19



NOTE:
INDEX POINT AT RIVER MILE 132.8,
SCIO, NY.

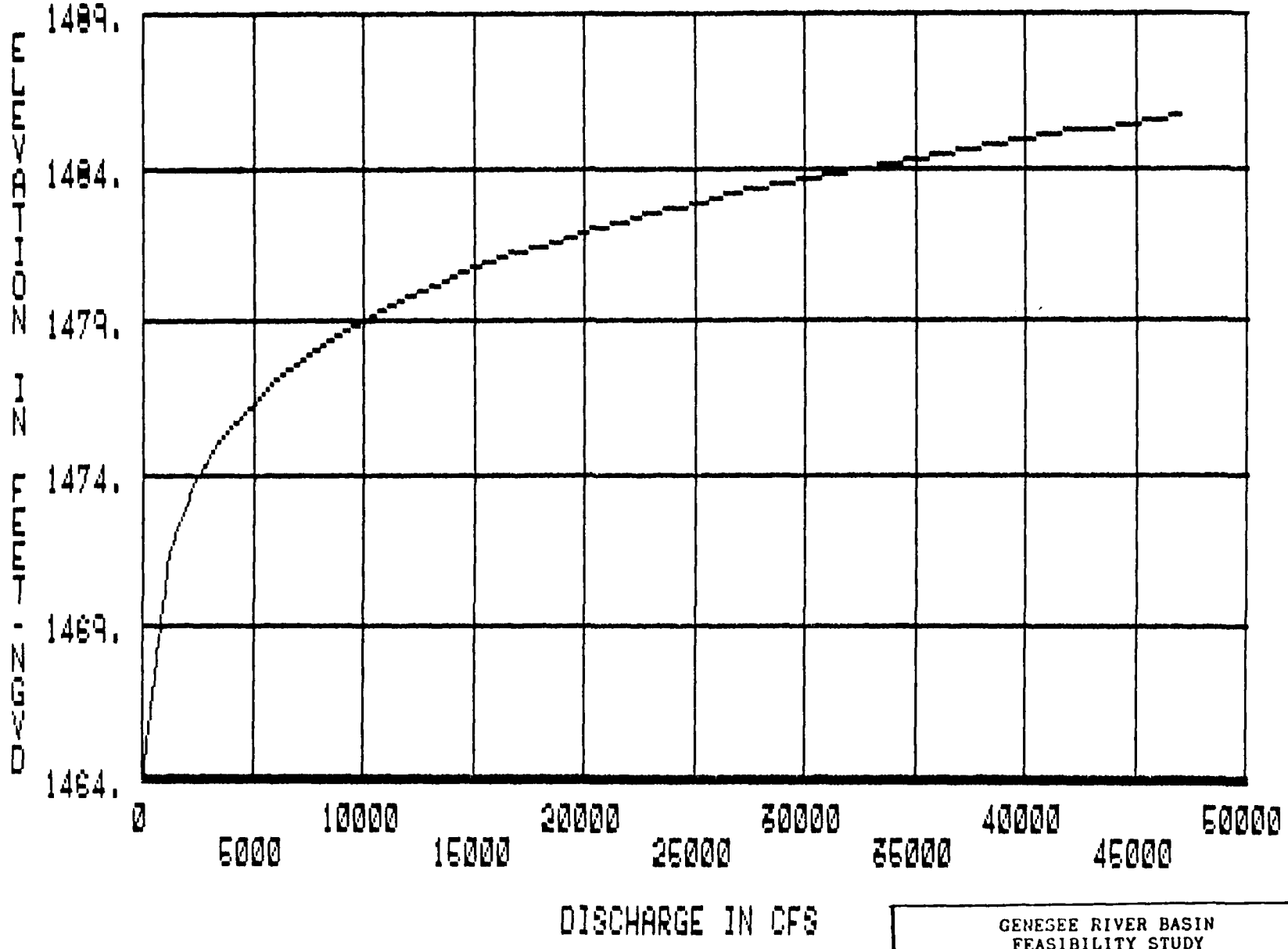
GENESEE RIVER BASIN
FEASIBILITY STUDY
New York and Pennsylvania

RATING CURVE

REACH II

U.S.Army Engineer District Buffalo

FIGURE A20



INDEX POINT-1400' DOWNSTREAM OF
BOLIVAR ROAD BRIDGE

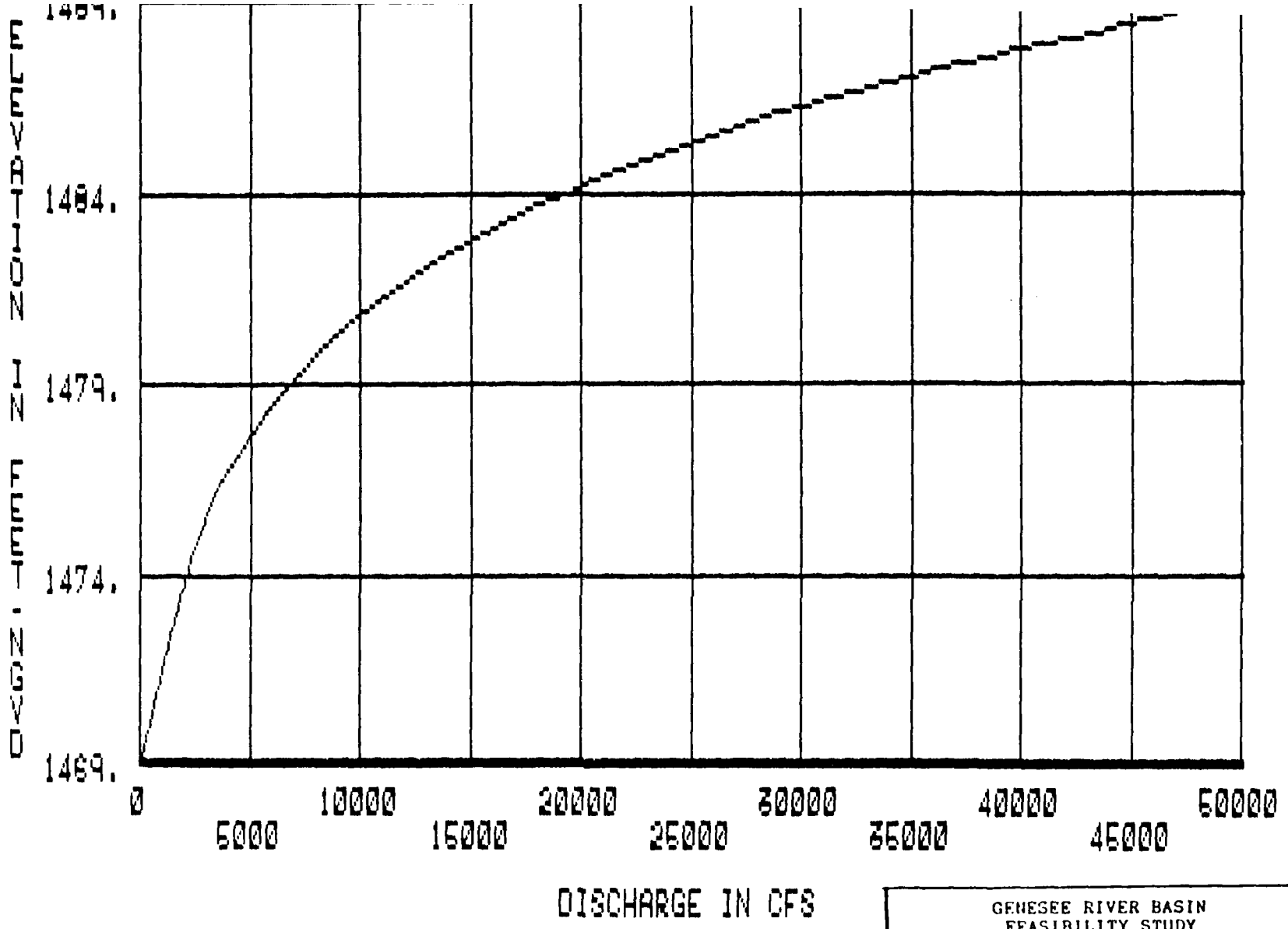
GENESEE RIVER BASIN
FEASIBILITY STUDY
New York and Pennsylvania

RATING CURVE

REACH 12 (G-1)

U.S.Army Engineer District Buffalo

FIGURE A21

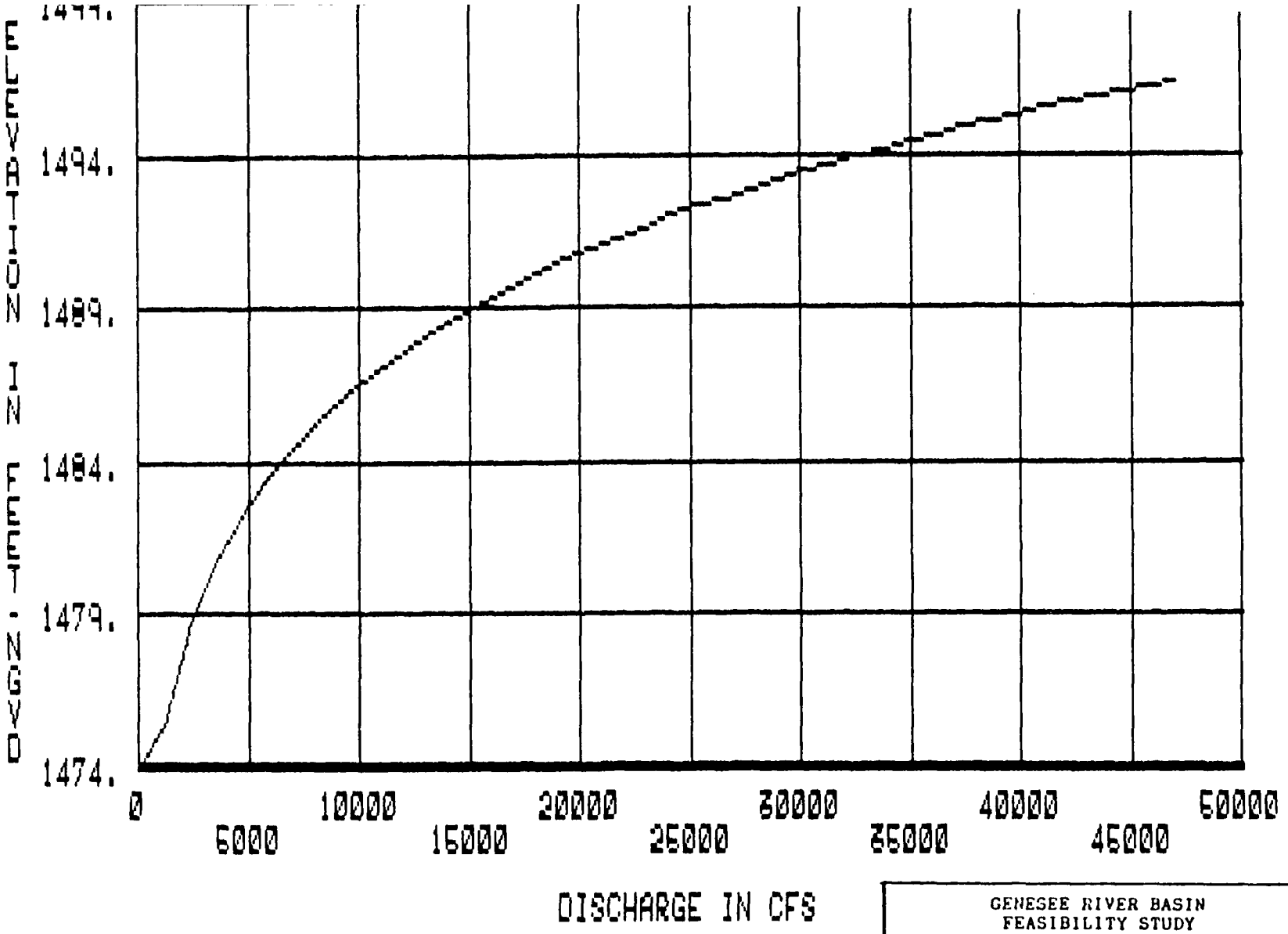


INDEX POINT-1500' UPSTREAM OF BOLIVAR ROAD BRIDGE

GENESEE RIVER BASIN
FEASIBILITY STUDY
New York and Pennsylvania

RATING CURVE
REACH 12 (G-2)
U.S.Army Engineer District Buffalo

FIGURE A22



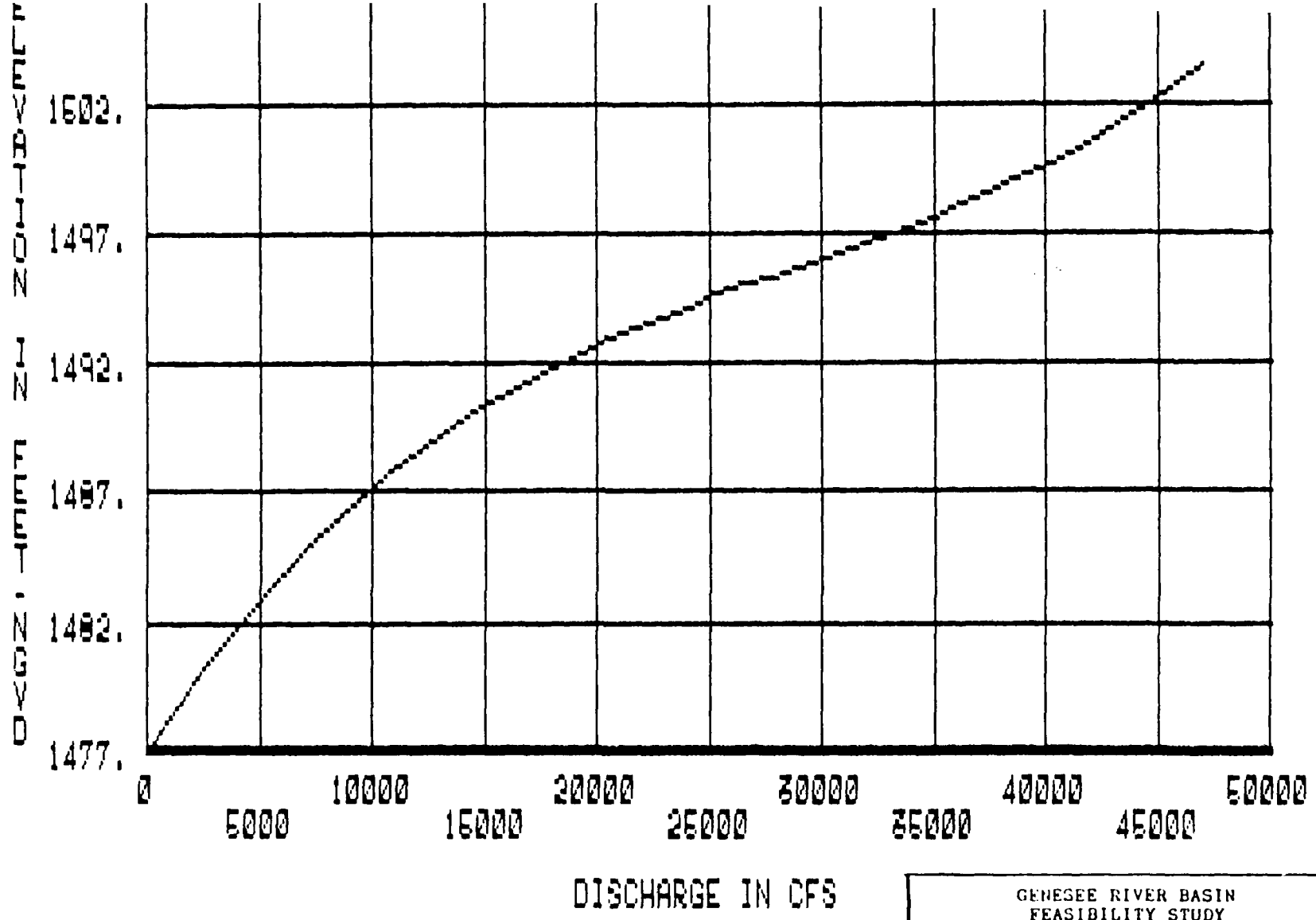
INDEX POINT-100' DOWNSTREAM OF OLD
PEARL STREET BRIDGE

GENESEE RIVER BASIN
FEASIBILITY STUDY
New York and Pennsylvania

RATING CURVE
REACH 12 (G-3)

U.S.Army Engineer District Buffalo

FIGURE A23



INDEX POINT-100' DOWNSTREAM OF STATE STREET BRIDGE

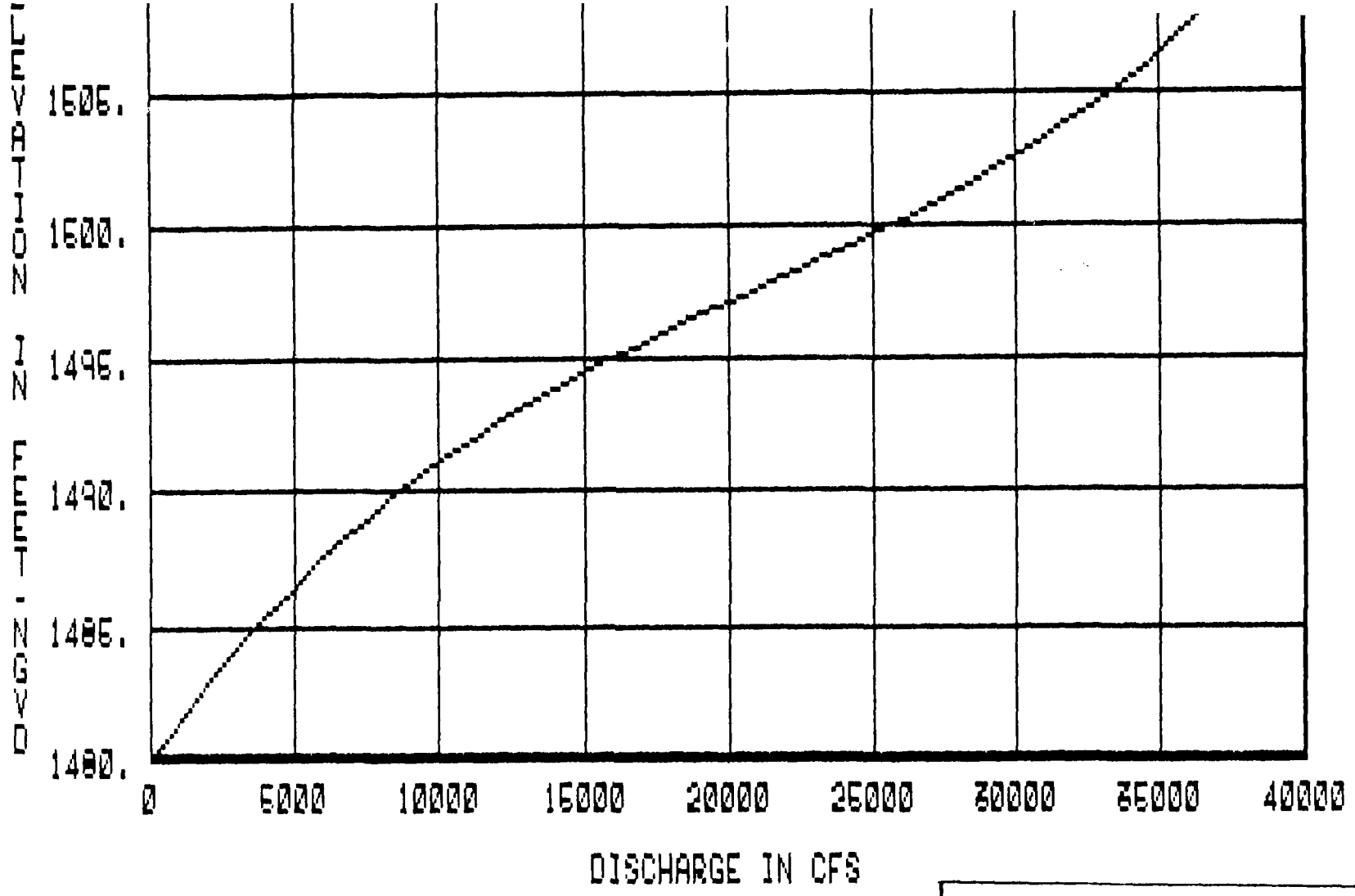
GENESEE RIVER BASIN
FEASIBILITY STUDY
New York and Pennsylvania

RATING CURVE

REACH 12 (G-4)

U.S.Army Engineer District Buffalo

FIGURE A24



INDEX POINT-1100' UPSTREAM OF
STATE STREET BRIDGE

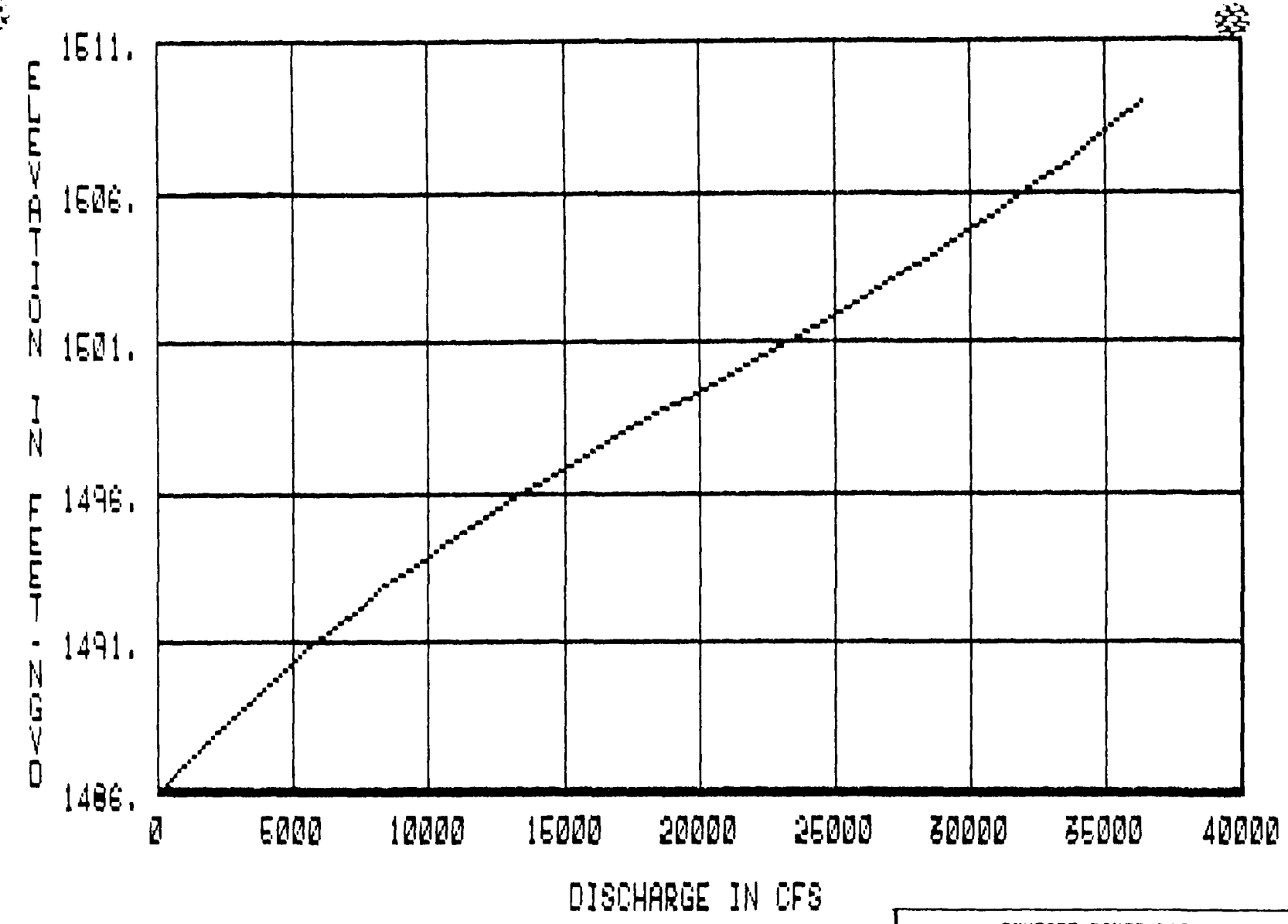
GENESEE RIVER BASIN
FEASIBILITY STUDY
New York and Pennsylvania

RATING CURVE

REACH 12 (G-5a) & 12 (G-5b)

U.S.Army Engineer District Buffalo

FIGURE A25



INDEX POINT-1200' UPSTREAM OF OLD MUNICIPAL DAM

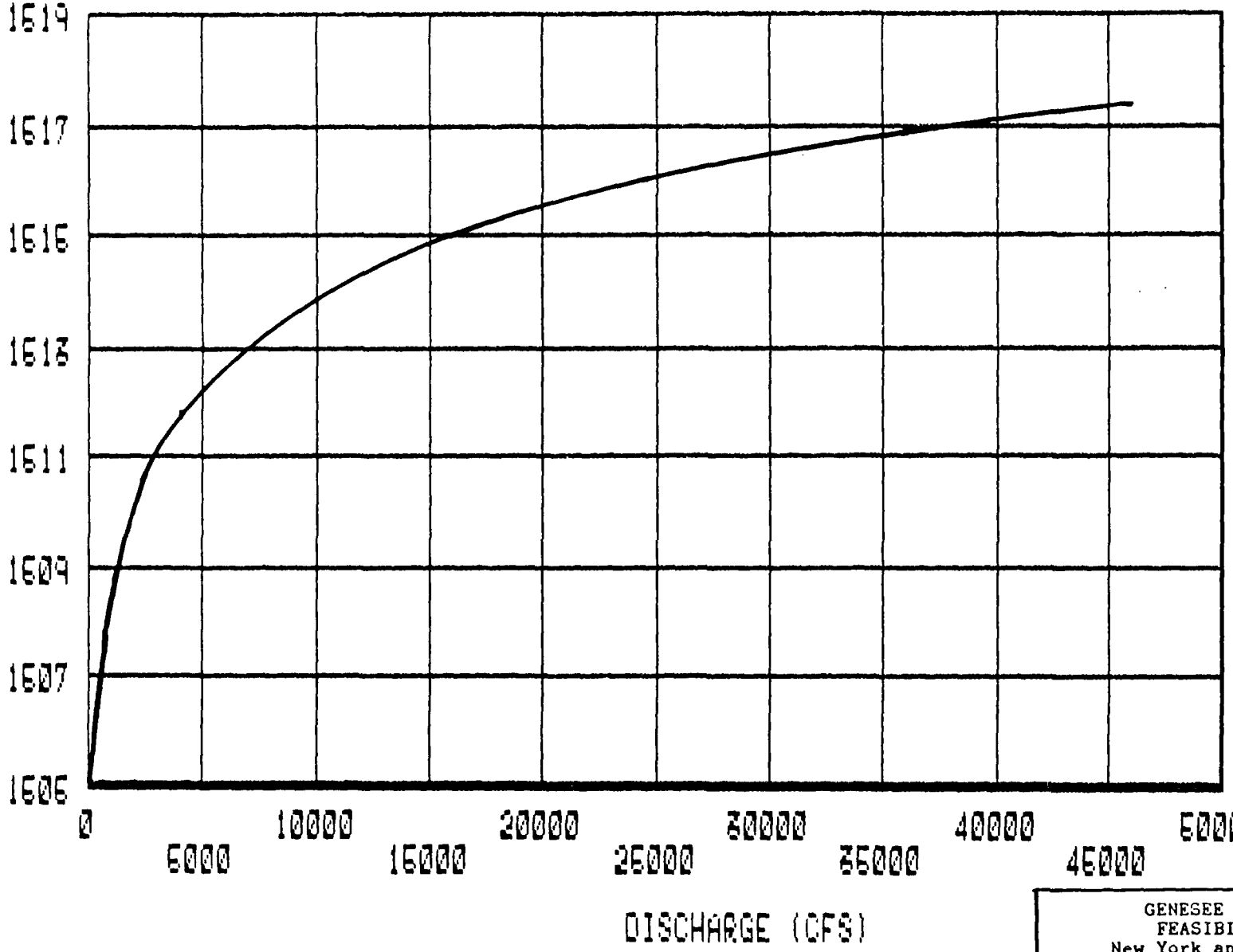
GENESEE RIVER BASIN
FEASIBILITY STUDY
New York and Pennsylvania

RATING CURVE

REACH 12 (G-6)

U.S. Army Engineer District Buffalo

FIGURE A26



NOTE:
INDEX POINT AT RIVER MILE 139.4,
STANNARDS CORNERS, NY.

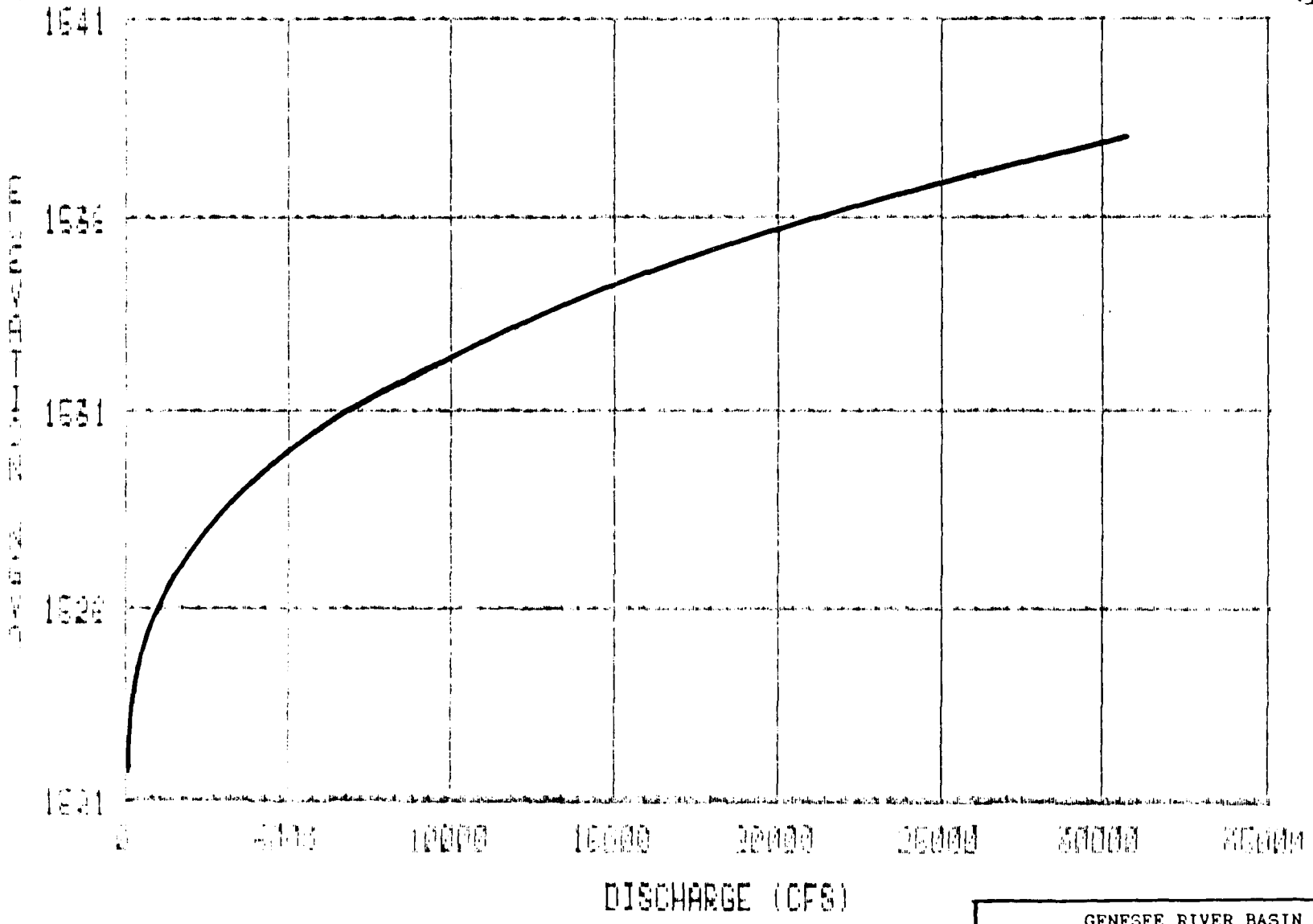
GENESEE RIVER BASIN
FEASIBILITY STUDY
New York and Pennsylvania

RATING CURVE

REACH 13

U.S.Army Engineer District Buffalo

FIGURE A27



NOTE:
INDEX POINT AT RIVER MILE 141.1,
SHONGO, NY.

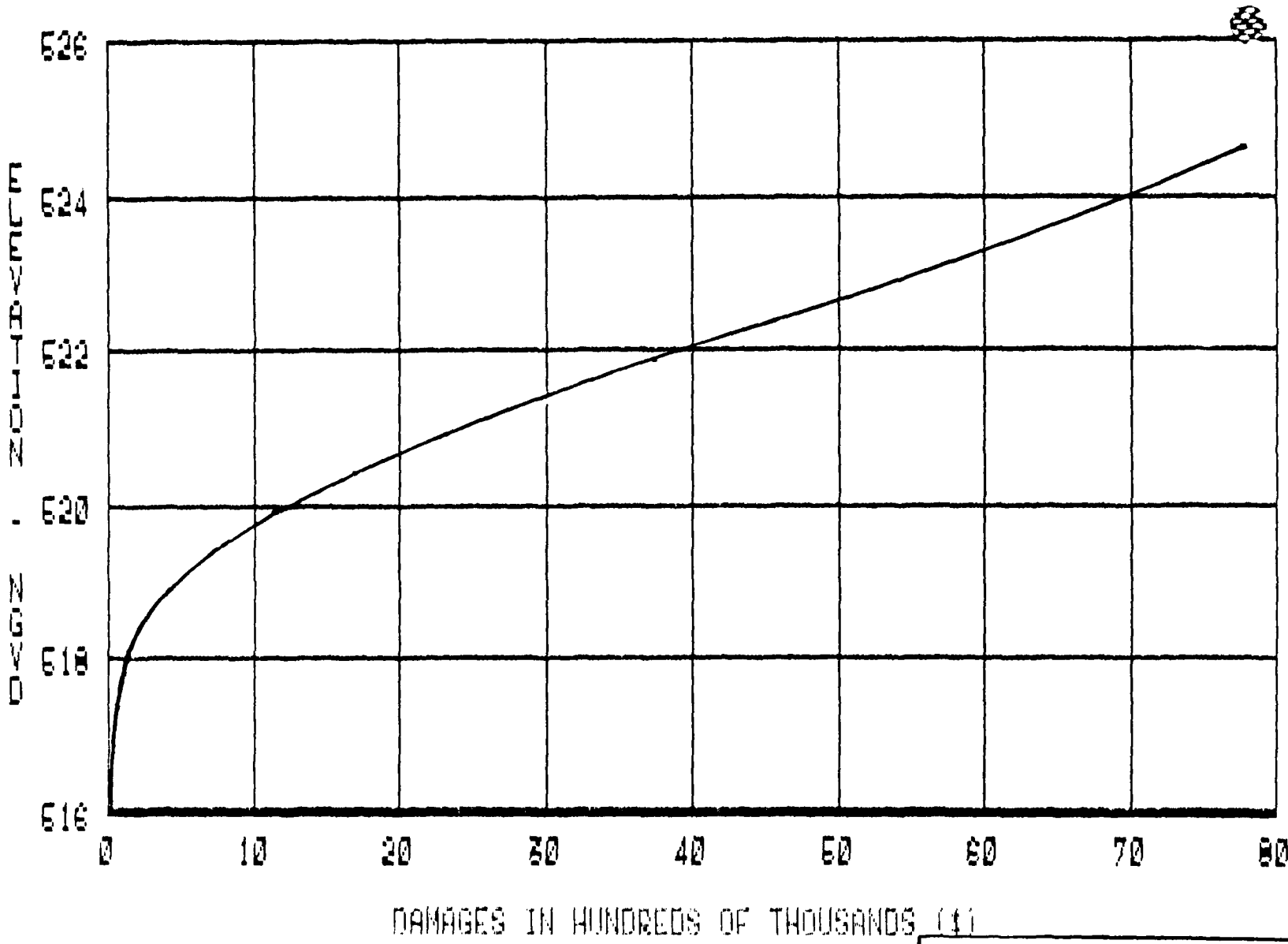
GENESEE RIVER BASIN
FEASIBILITY STUDY
New York and Pennsylvania

RATING CURVE

REACH 14

U.S.Army Engineer District Buffalo

FIGURE A28



NOTE:
ALL VALUES ARE BASED ON OCT. 1987 PRICE LEVELS.

INDEX POINT AT RIVER MILE 14.1, CHILI, NY.

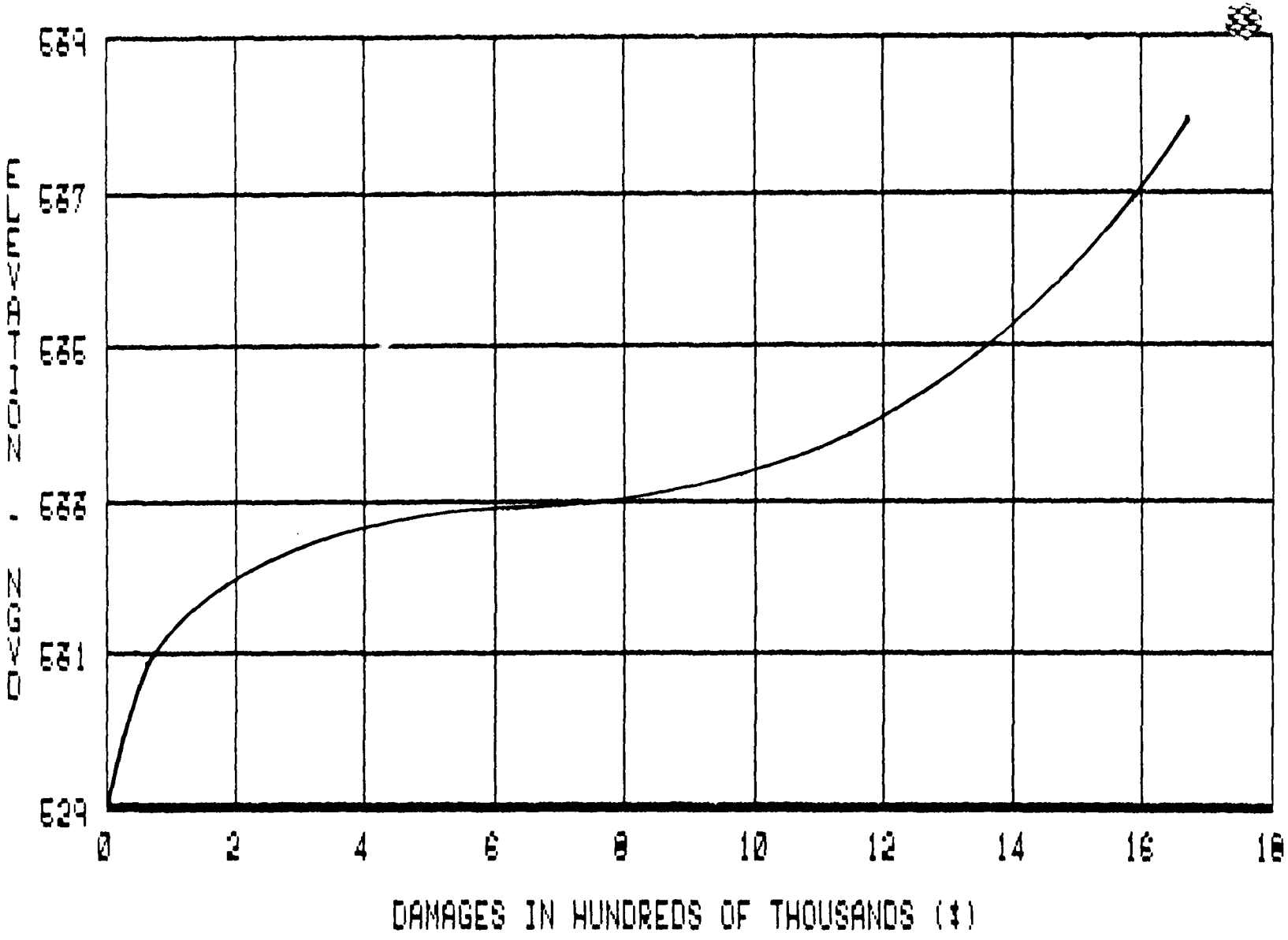
GENESEE RIVER BASIN
FEASIBILITY STUDY
New York and Pennsylvania

STAGE DAMAGE CURVE

REACH 2

U.S.Army Engineer District Buffalo

FIGURE A29



NOTE:
ALL VALUES ARE BASED ON OCT. 1987 PRICE LEVELS.

INDEX POINT AT RIVER MILE 26.6
AVON, NY.

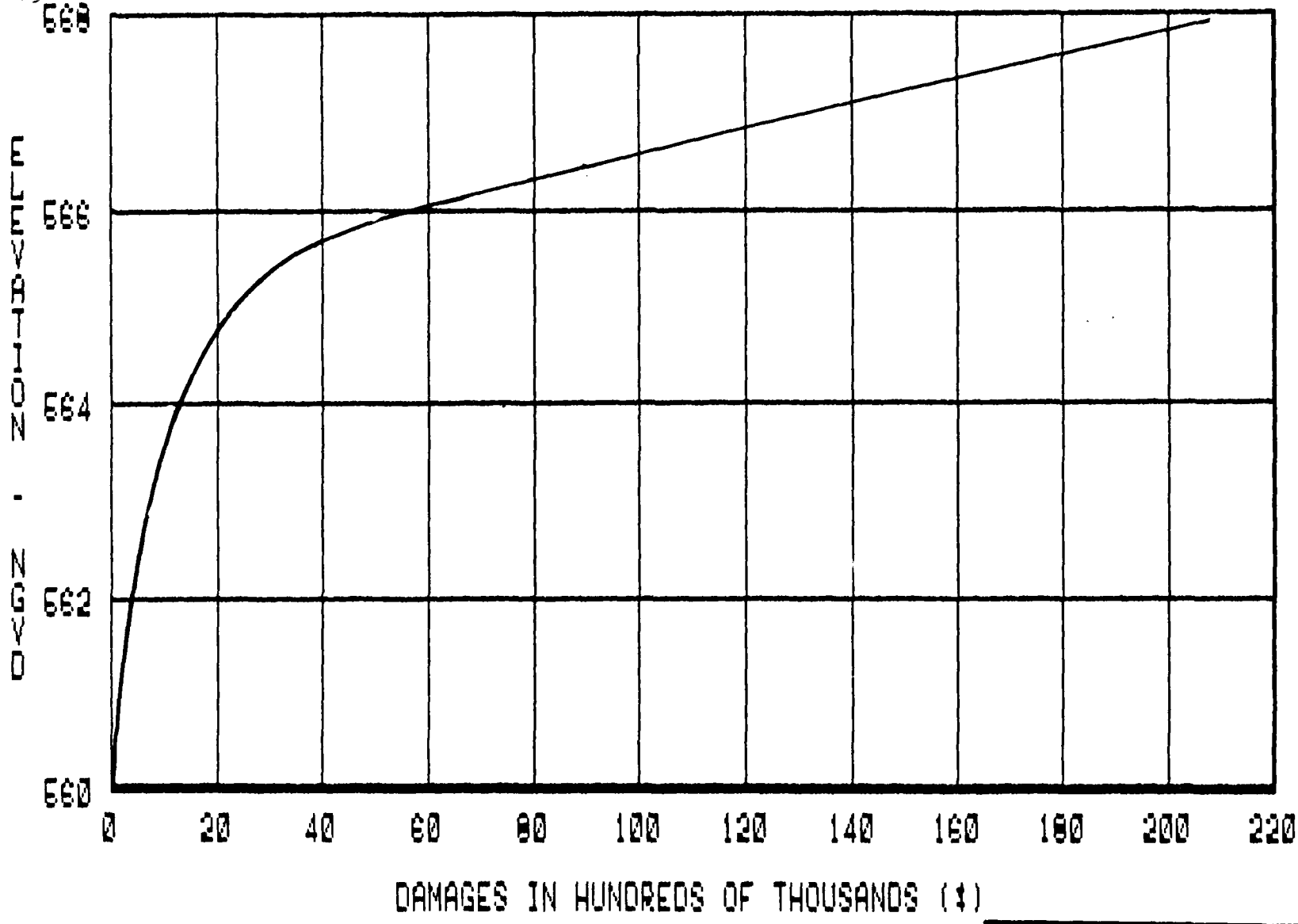
GENESEE RIVER BASIN
FEASIBILITY STUDY
New York and Pennsylvania

STAGE DAMAGE CURVE

REACH 3

U.S.Army Engineer District Buffalo

FIGURE A30



NOTE:
ALL VALUES ARE BASED ON OCT. 1987 PRICE LEVELS.

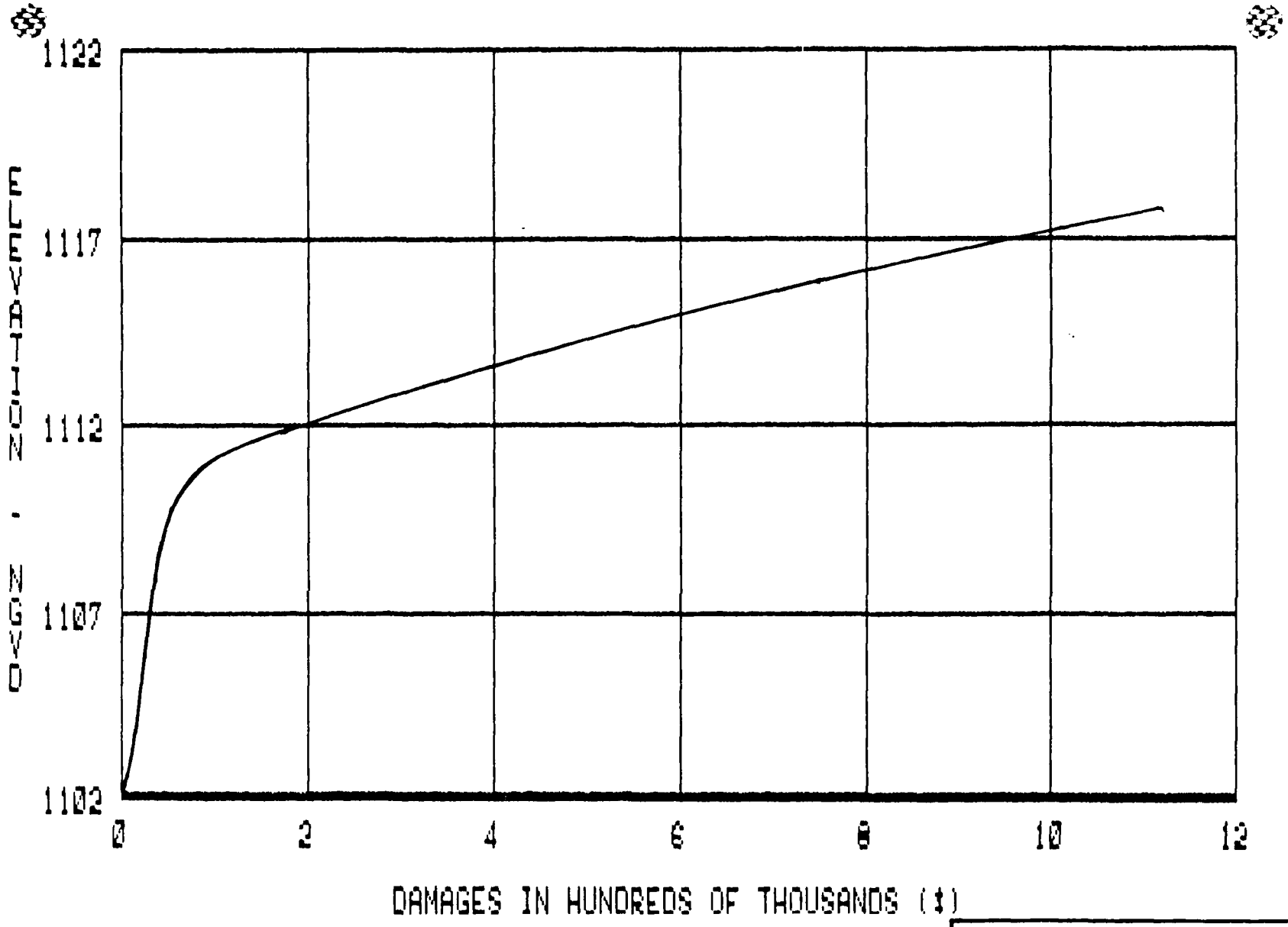
INDEX POINT AT RIVER MILE 61.2
GENESEO, NY.

GENESEE RIVER BASIN
FEASIBILITY STUDY
New York and Pennsylvania

STAGE DAMAGE CURVE
REACH 4

U.S.Army Engineer District Buffalo

FIGURE A31



NOTE:
ALL VALUES ARE BASED ON OCT. 1987 PRICE LEVELS.

INDEX POINT AT RIVER MILE 86.7
PORTAGEVILLE, NY.

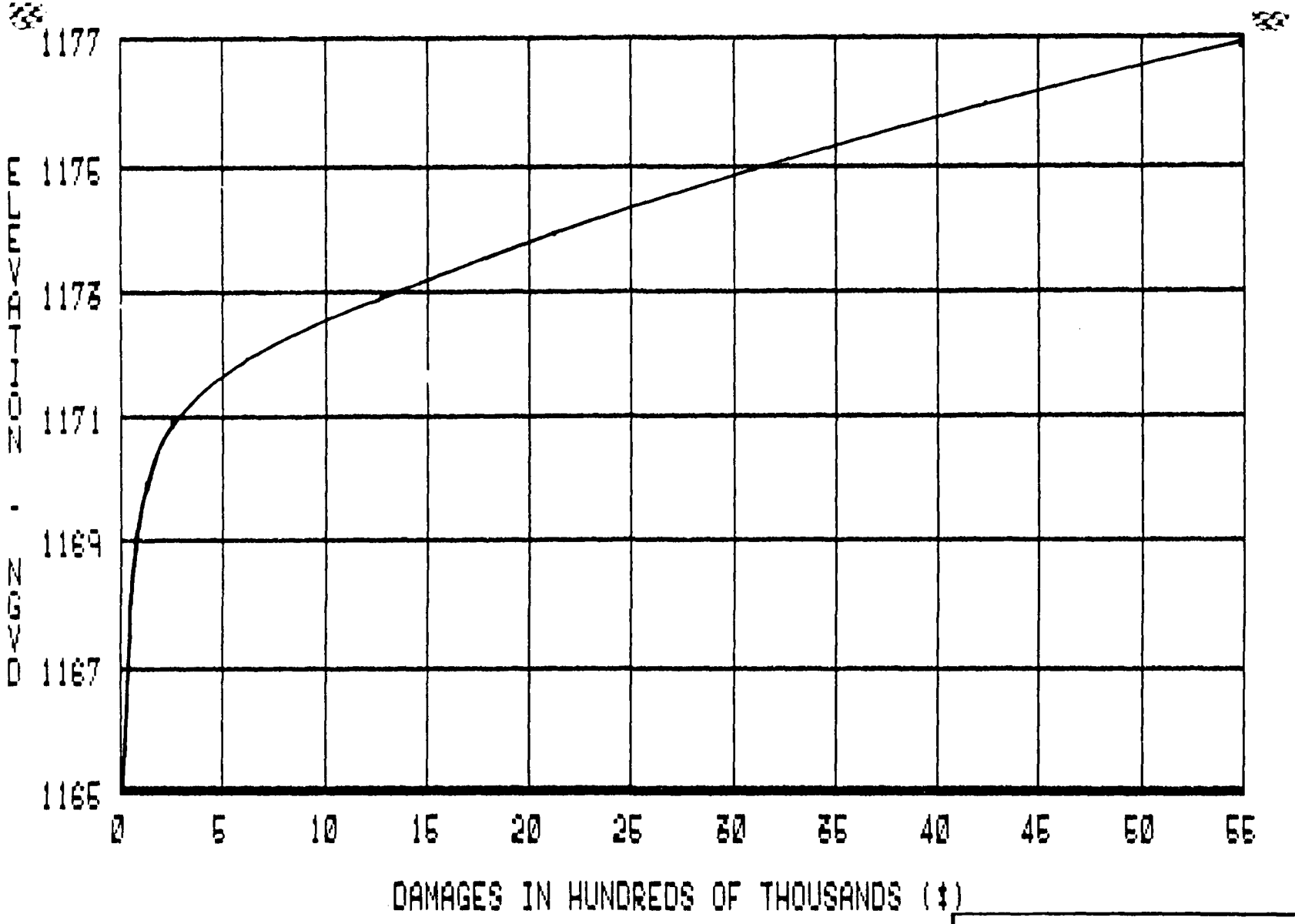
GENESEE RIVER BASIN
FEASIBILITY STUDY
New York and Pennsylvania

STAGE DAMAGE CURVE

REACH 6

U.S.Army Engineer District Buffalo

FIGURE A32



NOTE:
ALL VALUES ARE BASED ON OCT. 1987 PRICE LEVELS.

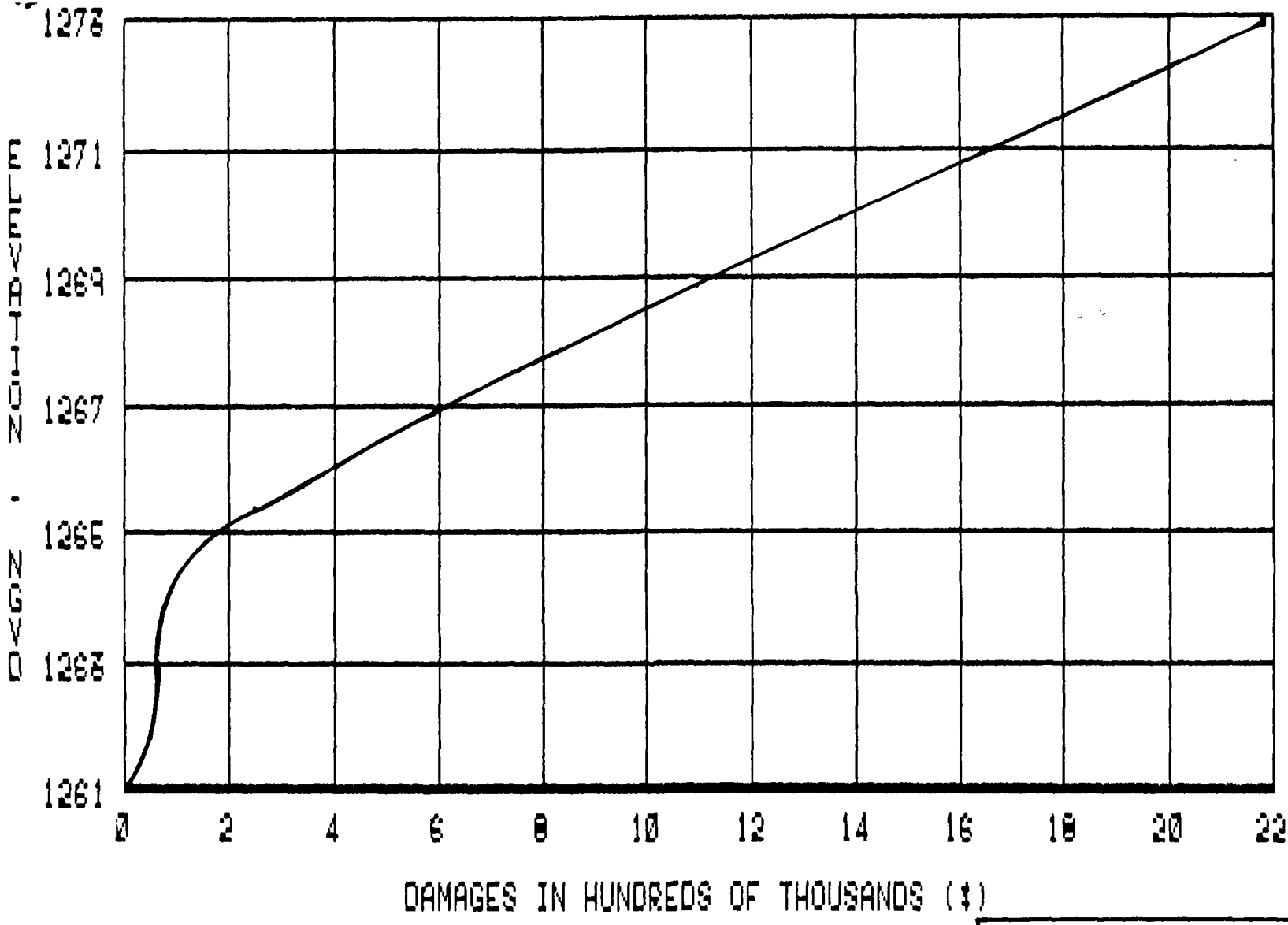
INDEX POINT AT RIVER MILE 99.9 FILLMORE, NY.

GENESEE RIVER BASIN
FEASIBILITY STUDY
New York and Pennsylvania

STAGE DAMAGE CURVE
REACH 7

U.S.Army Engineer District Buffalo

FIGURE A33



NOTE:
ALL VALUES ARE BASED ON OCT. 1987 PRICE LEVELS.

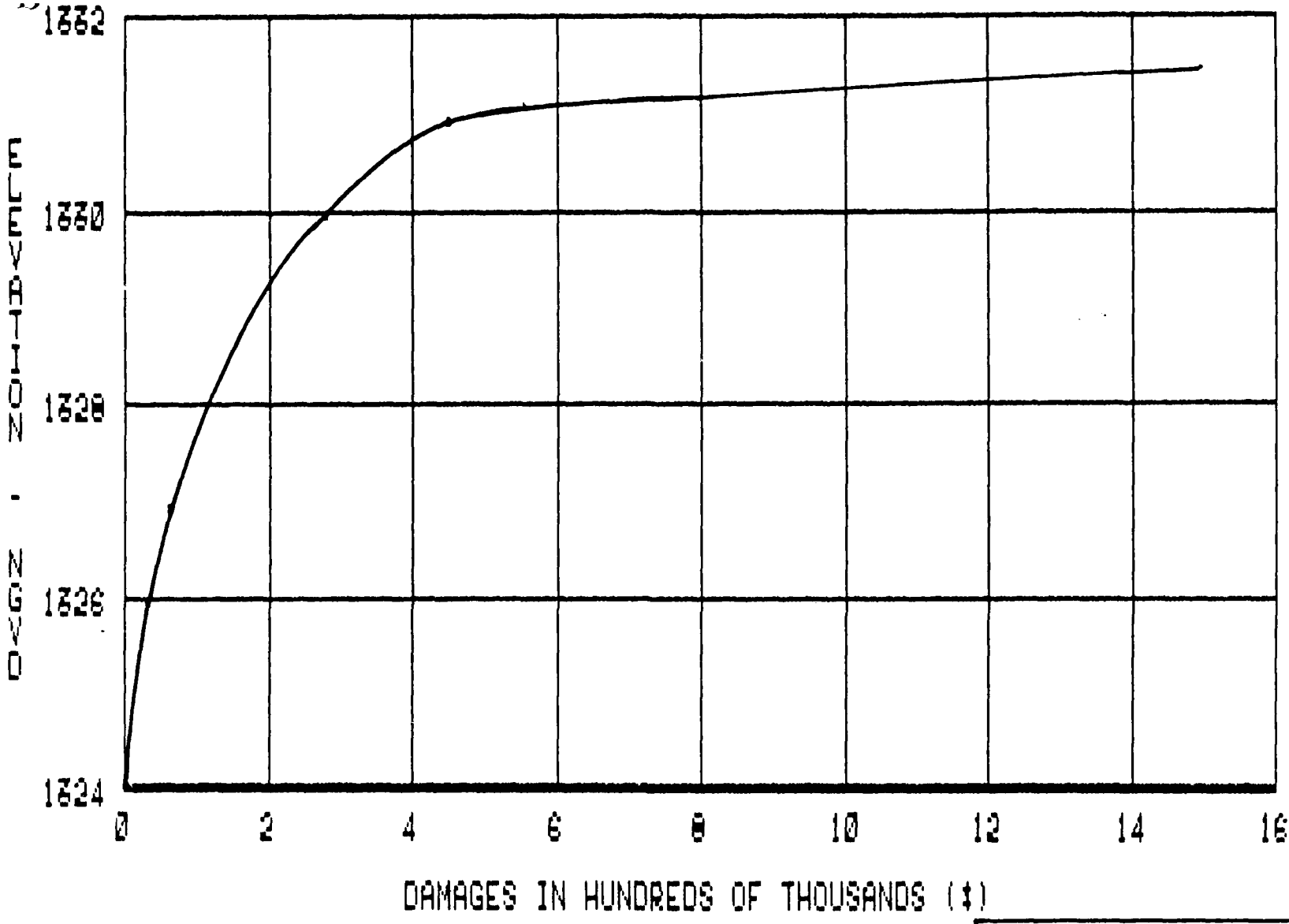
INDEX POINT AT RIVER MILE 113.5
BELFAST, NY.

GENESEE RIVER BASIN
FEASIBILITY STUDY
New York and Pennsylvania

STAGE DAMAGE CURVE
REACH 8

U.S.Army Engineer District Buffalo

FIGURE A34



NOTE:
ALL VALUES ARE BASED ON OCT. 1987 PRICE LEVELS.

INDEX POINT AT RIVER MILE 123.0 BELVIDERE, NY.

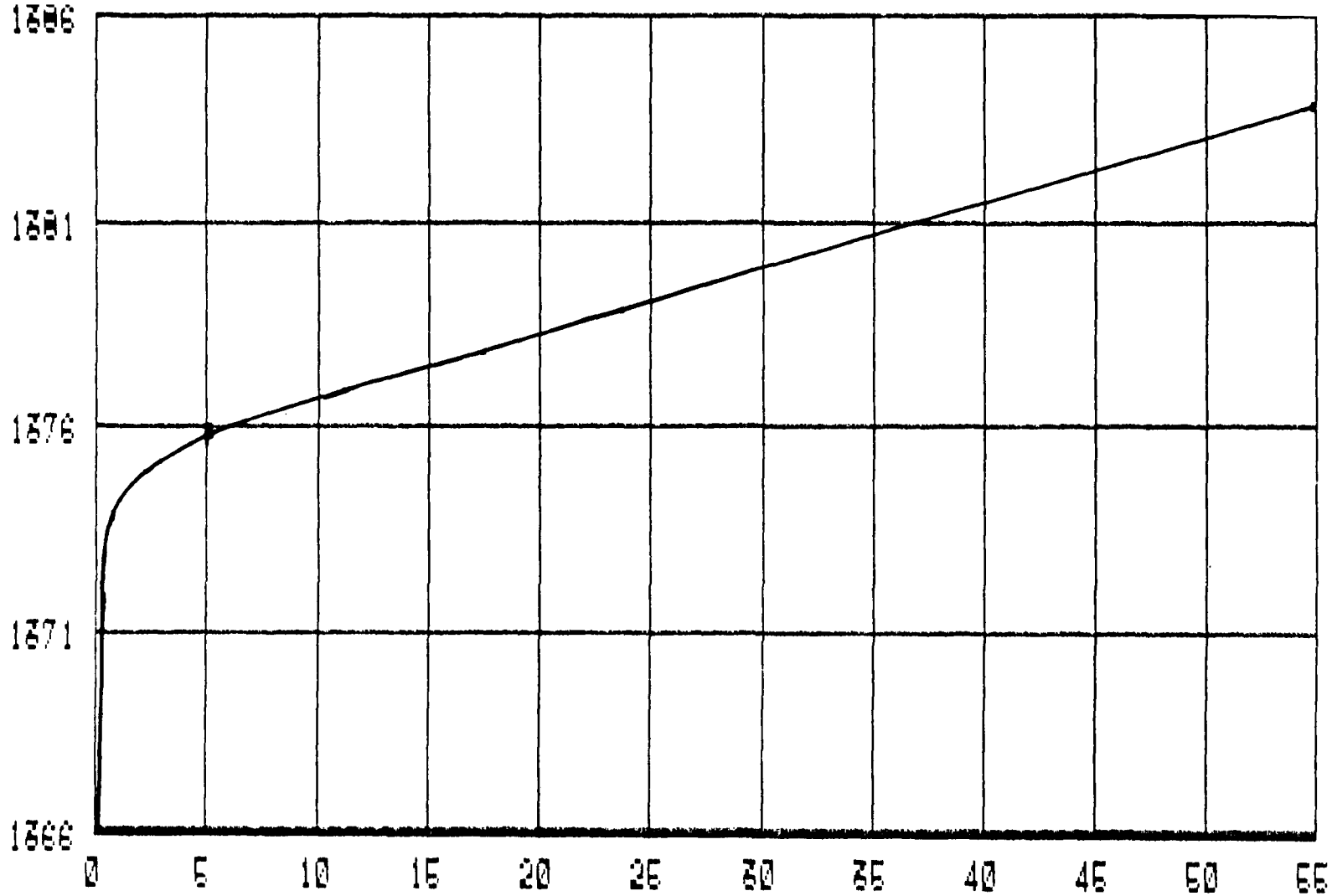
GENESEE RIVER BASIN
FEASIBILITY STUDY
New York and Pennsylvania

STAGE DAMAGE CURVE

REACH 9

U.S.Army Engineer District Buffalo

FIGURE A35



NOTE:
ALL VALUES ARE BASED ON OCT. 1987 PRICE LEVELS.

INDEX POINT AT RIVER MILE 126.7 BELMONT, NY.

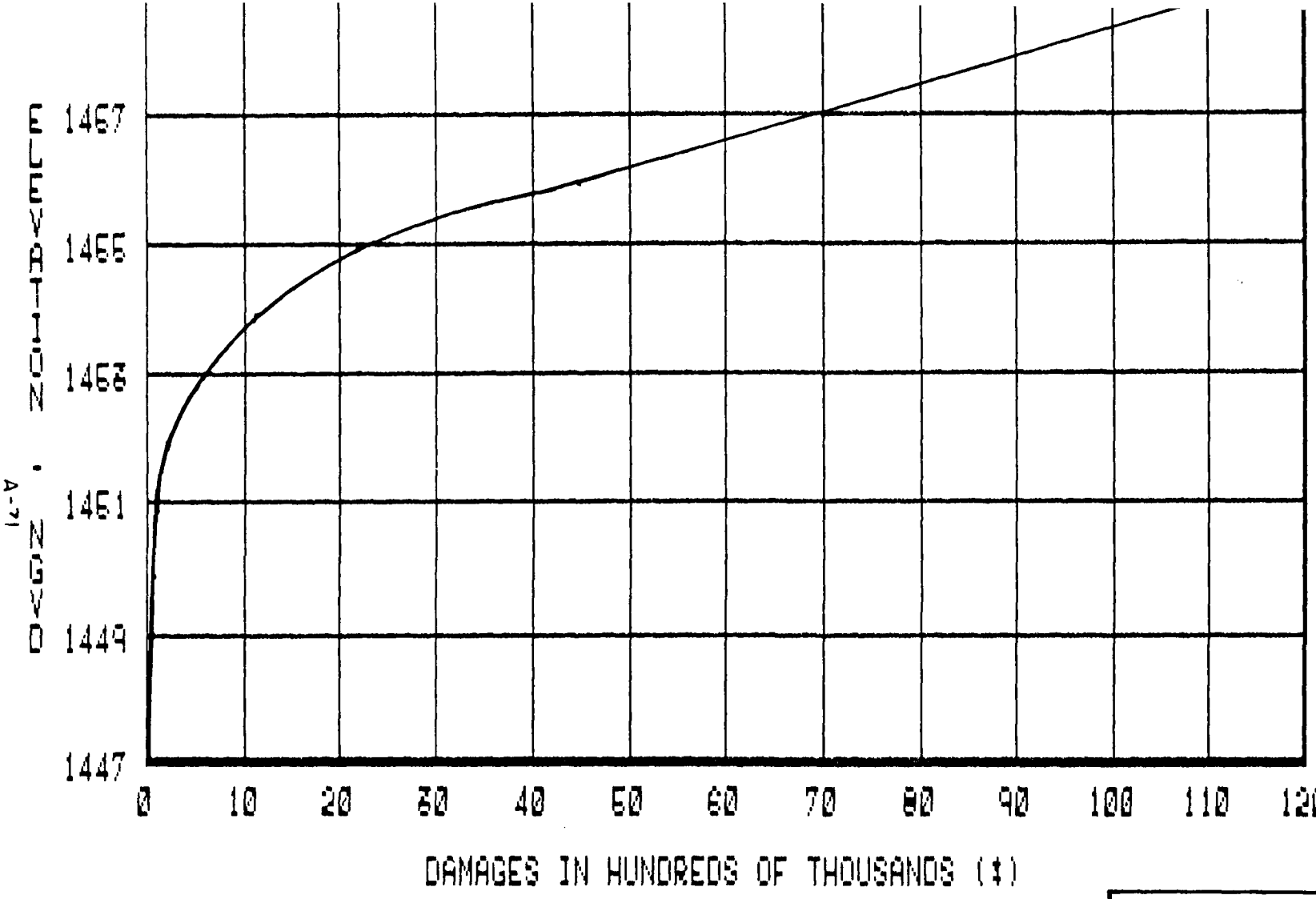
GENESEE RIVER BASIN
FEASIBILITY STUDY
New York and Pennsylvania

STAGE DAMAGE CURVE

REACH 10

U.S.Army Engineer District Buffalo

FIGURE A36



NOTE:
ALL VALUES ARE BASED ON OCT. 1987 PRICE LEVELS.

INDEX POINT AT RIVER MILE 132.8
SCIO, NY.

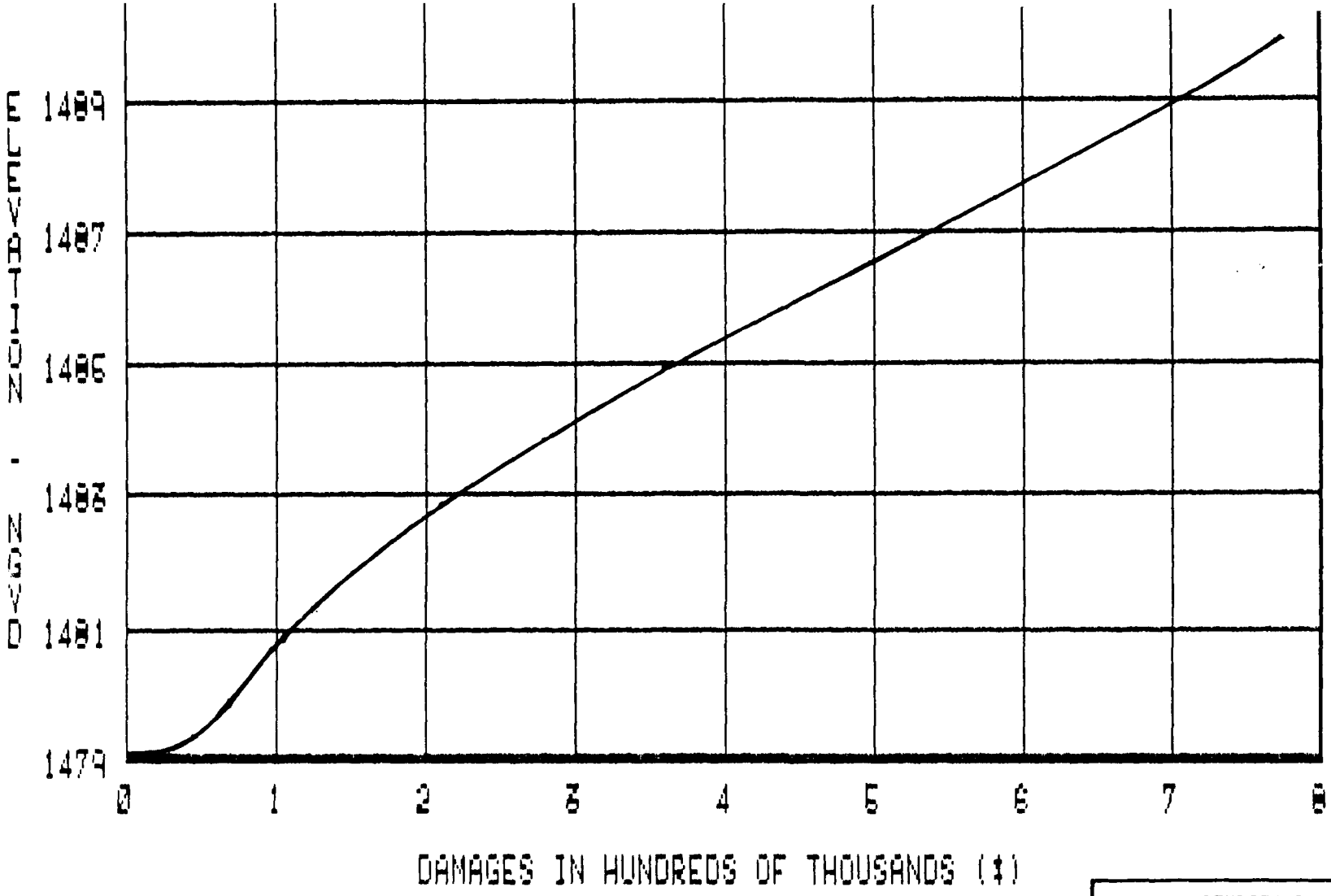
GENESEE RIVER BASIN
FEASIBILITY STUDY
New York and Pennsylvania

STAGE DAMAGE CURVE

REACH II

U.S.Army Engineer District Buffalo

FIGURE A37

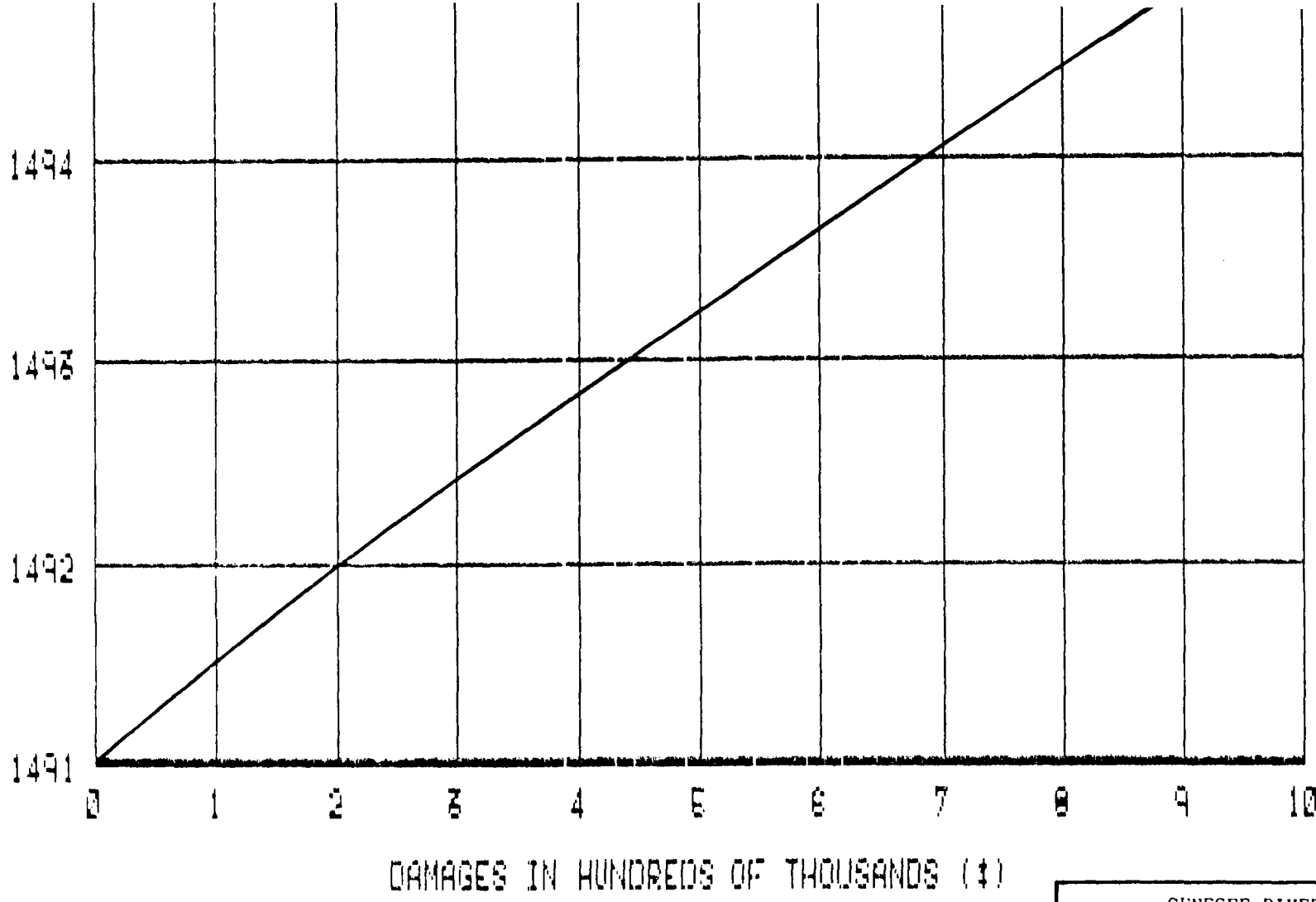


NOTE:
ALL VALUES ARE BASED ON OCT. 1987 PRICE LEVELS.
INDEX POINT-1400' DOWNSTREAM OF BOLIVAR ROAD BRIDGE

GENESEE RIVER BASIN
FEASIBILITY STUDY
New York and Pennsylvania

STAGE DAMAGE CURVE
REACH 12 (G-1)
U.S.Army Engineer District Buffalo

FIGURE A 38



NOTE:
ALL VALUES ARE BASED ON OCT. 1987 PRICE LEVELS.

INDEX POINT-1500' UPSTREAM OF BOLIVAR ROAD BRIDGE

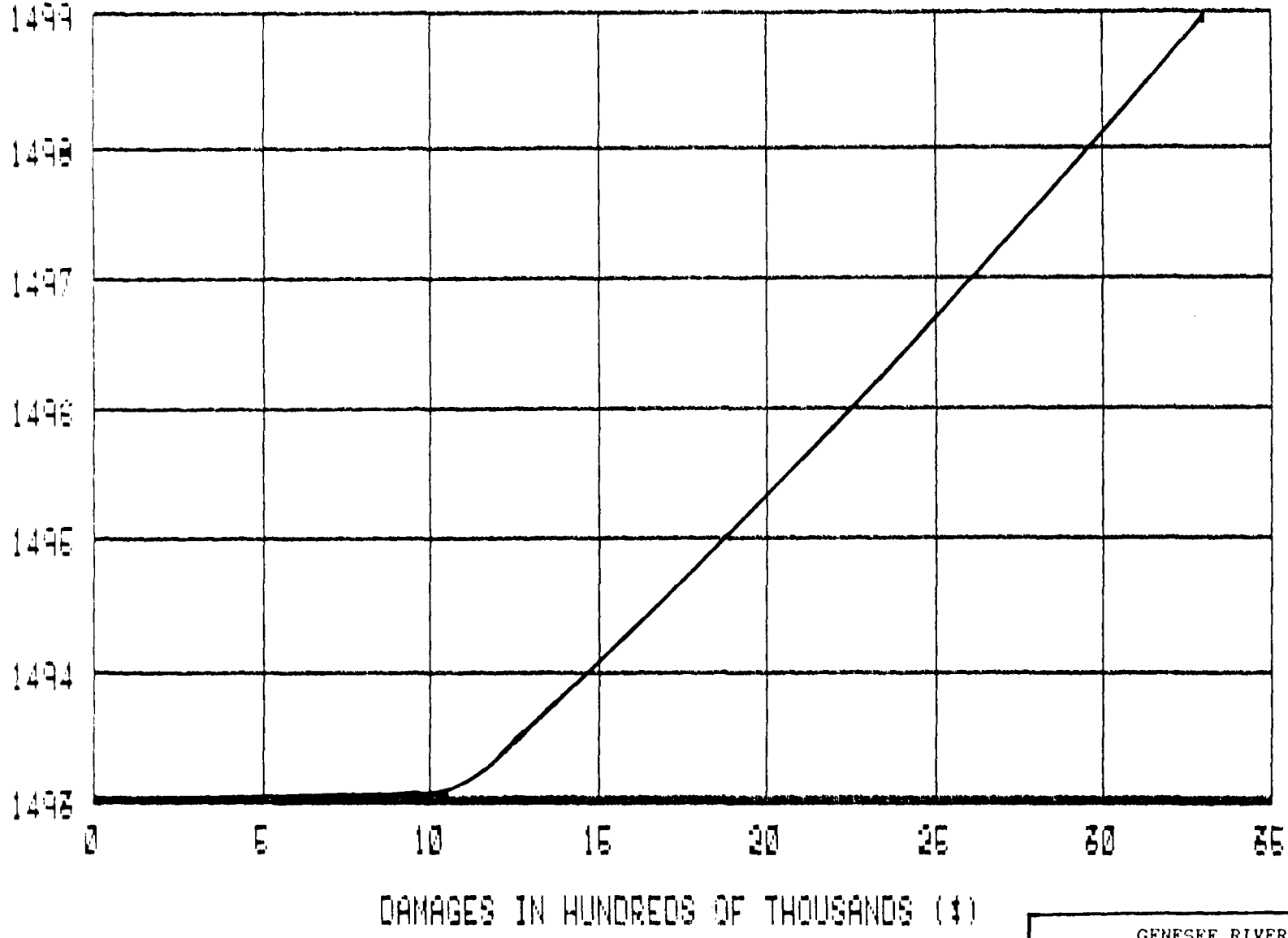
GENESEE RIVER BASIN
FEASIBILITY STUDY
New York and Pennsylvania

STAGE DAMAGE CURVE

REACH 12 (G-2)

U.S.Army Engineer District Buffalo

FIGURE A39



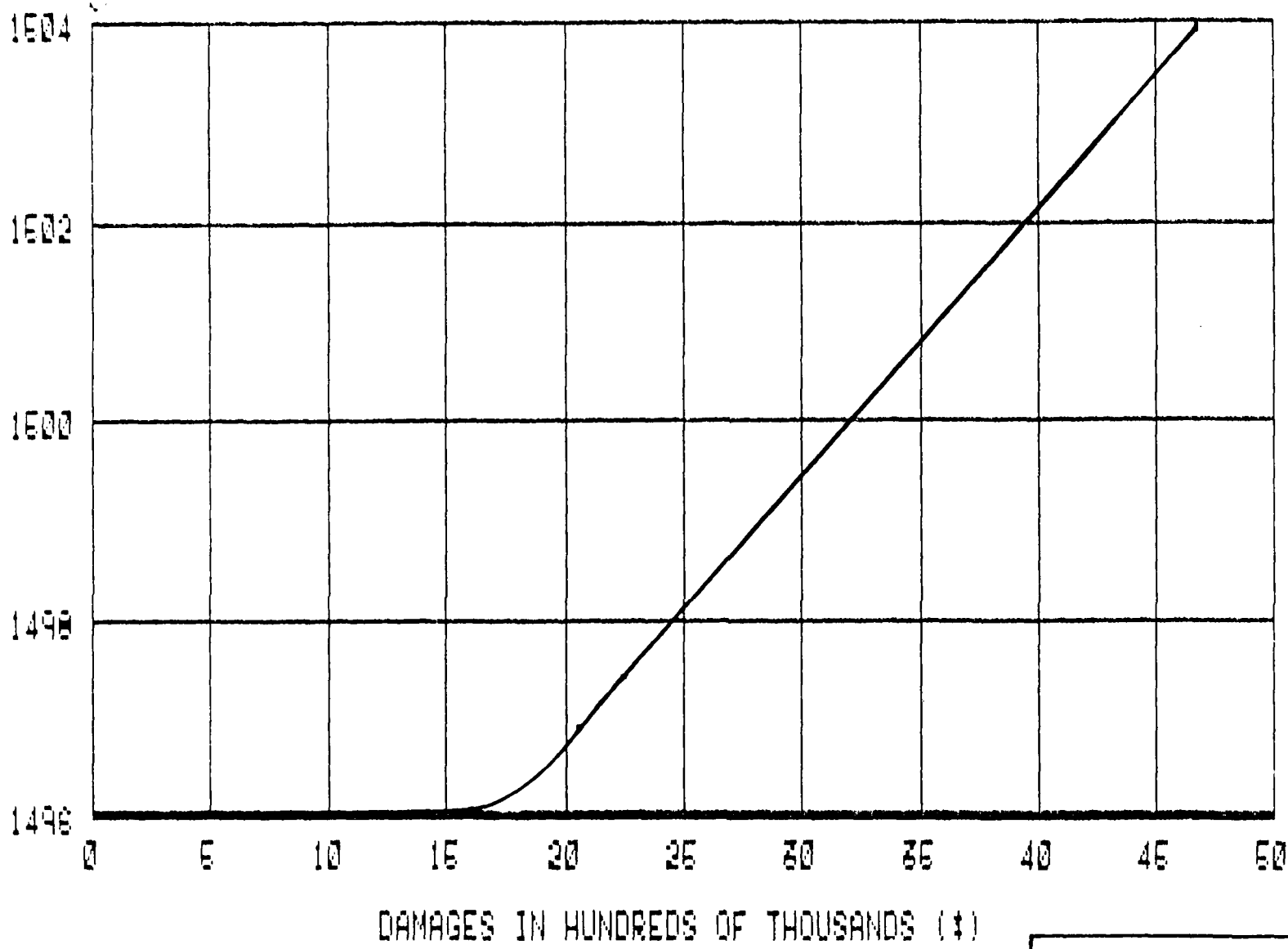
NOTE:
ALL VALUES ARE BASED ON OCT. 1987 PRICE LEVELS.

INDEX POINT-100' DOWNSTREAM OF OLD PEARL STREET BRIDGE

GENESEE RIVER BASIN
FEASIBILITY STUDY
New York and Pennsylvania

STAGE DAMAGE CURVE
REACH 12 (G-3)
U.S.Army Engineer District Buffalo

FIGURE A40



NOTE:
ALL VALUES ARE BASED ON OCT. 1987 PRICE LEVELS.

INDEX POINT-100' DOWNSTREAM OF STATE STREET BRIDGE

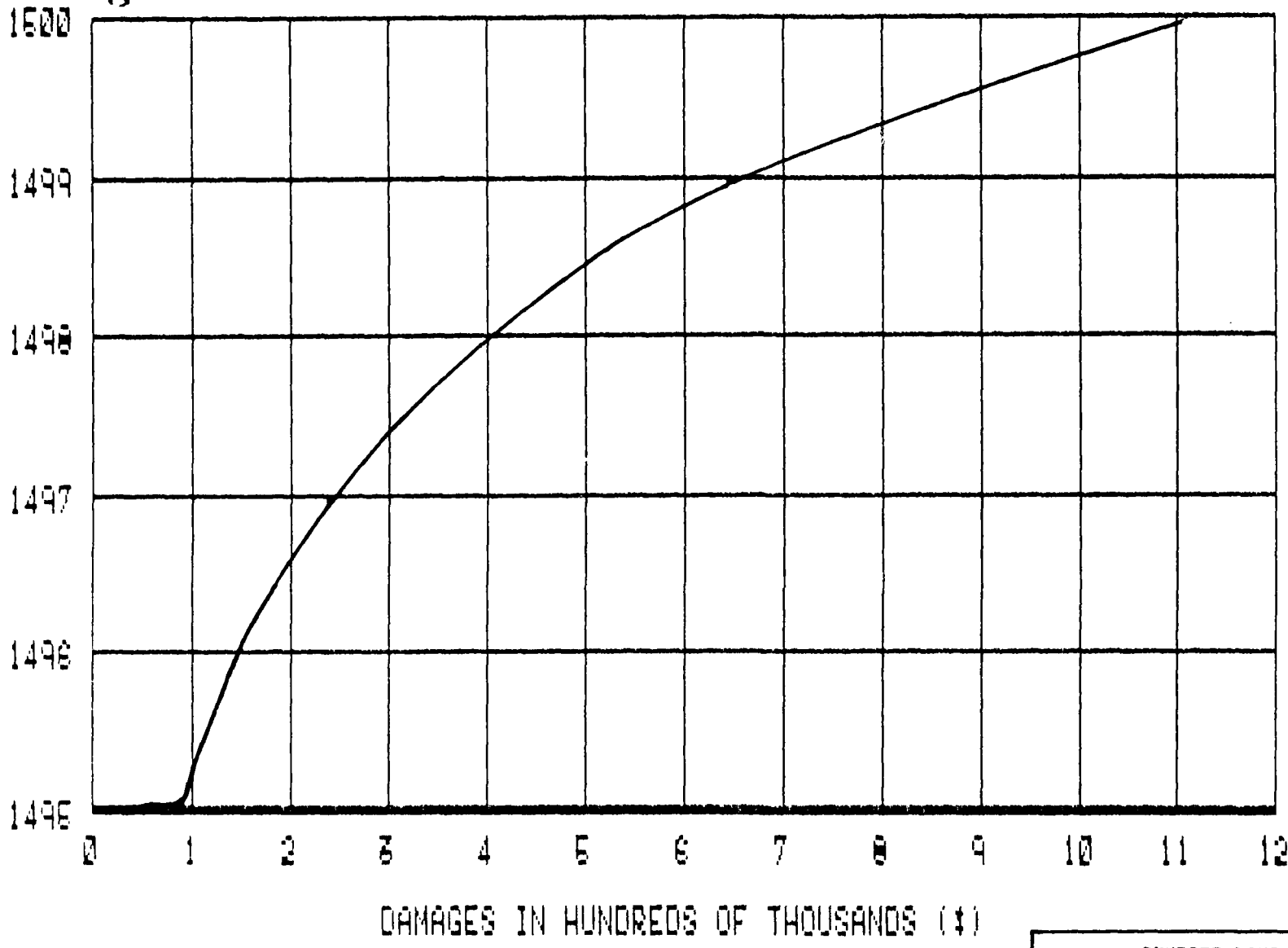
GENESEE RIVER BASIN
FEASIBILITY STUDY
New York and Pennsylvania

STAGE DAMAGE CURVE

REACH 12 (G-4)

U.S.Army Engineer District Buffalo

FIGURE A41



NOTE:
ALL VALUES ARE BASED ON OCT. 1987 PRICE LEVELS.

INDEX POINT-1100' UPSTREAM OF STATE STREET BRIDGE

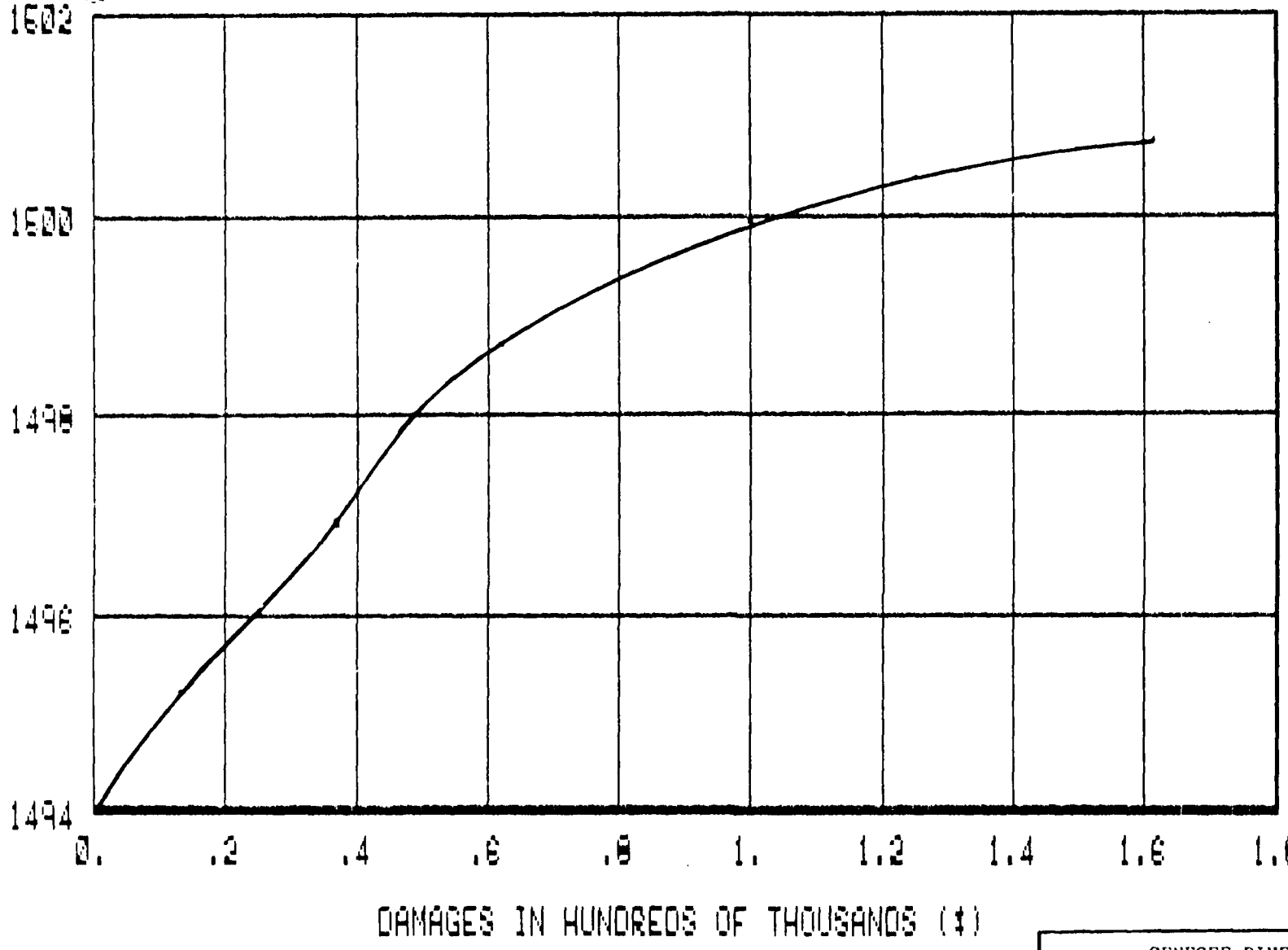
GENESEE RIVER BASIN
FEASIBILITY STUDY
New York and Pennsylvania

STAGE DAMAGE CURVE

REACH 12 (G-5a)

U.S.Army Engineer District Buffalo

FIGURE A42



NOTE:
ALL VALUES ARE BASED ON OCT. 1987 PRICE LEVELS.

INDEX POINT-1100' UPSTREAM OF STATE STREET BRIDGE

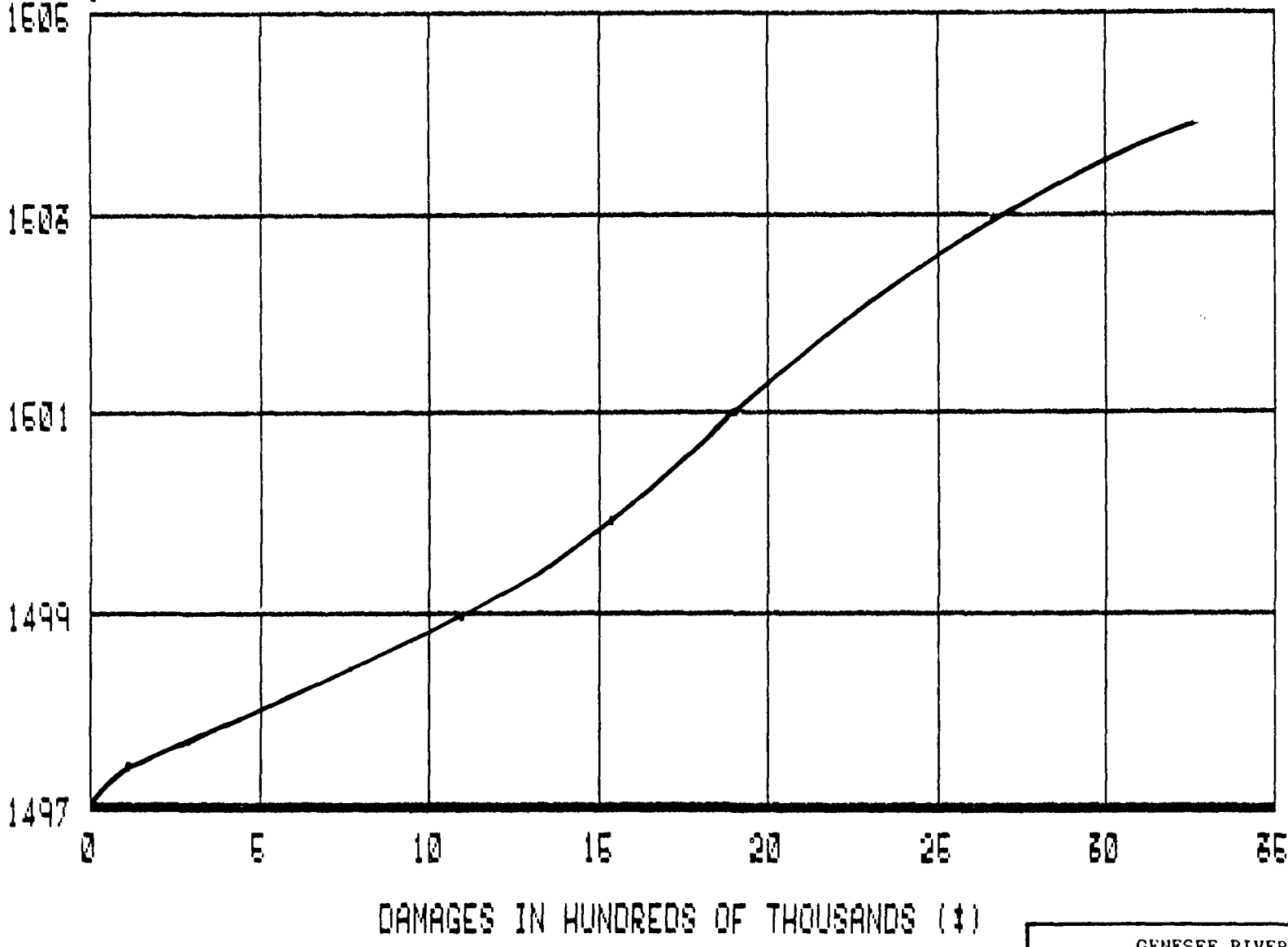
GENESEE RIVER BASIN
FEASIBILITY STUDY
New York and Pennsylvania

STAGE DAMAGE CURVE

REACH 12 (G-5b)

U.S.Army Engineer District Buffalo

FIGURE A43



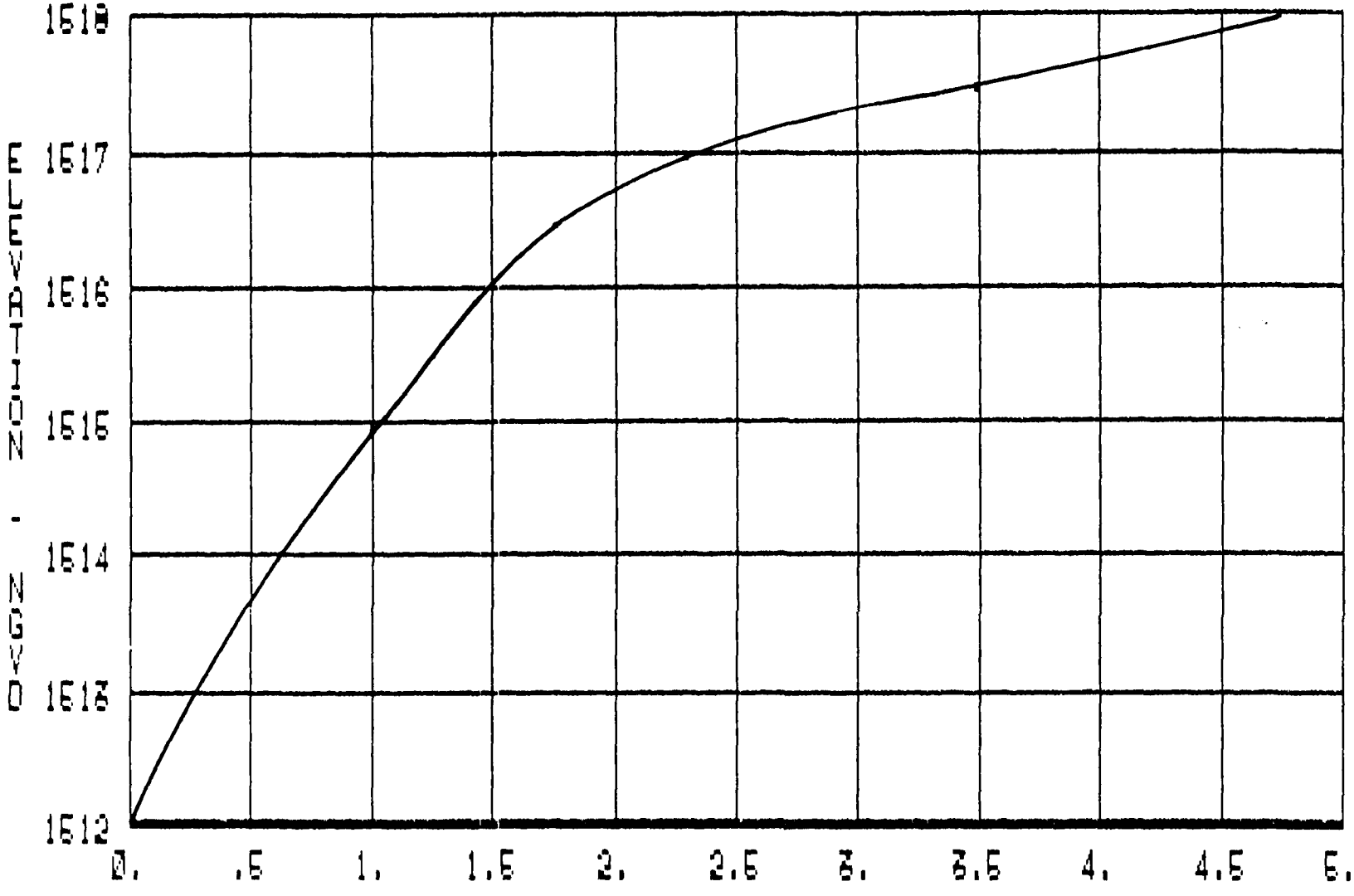
NOTE:
ALL VALUES ARE BASED ON OCT. 1987 PRICE LEVELS.

INDEX POINT-1200' UPSTREAM OF OLD MUNICIPAL DAM

GENESEE RIVER BASIN
FEASIBILITY STUDY
New York and Pennsylvania

STAGE DAMAGE CURVE
REACH 12 (G-6)
U.S.Army Engineer District Buffalo

FIGURE A44



NOTE:
ALL VALUES ARE BASED ON OCT 1987 PRICE LEVELS.

INDEX POINT AT RIVER MILE 139.4
STANNARDS CORNERS, NY.

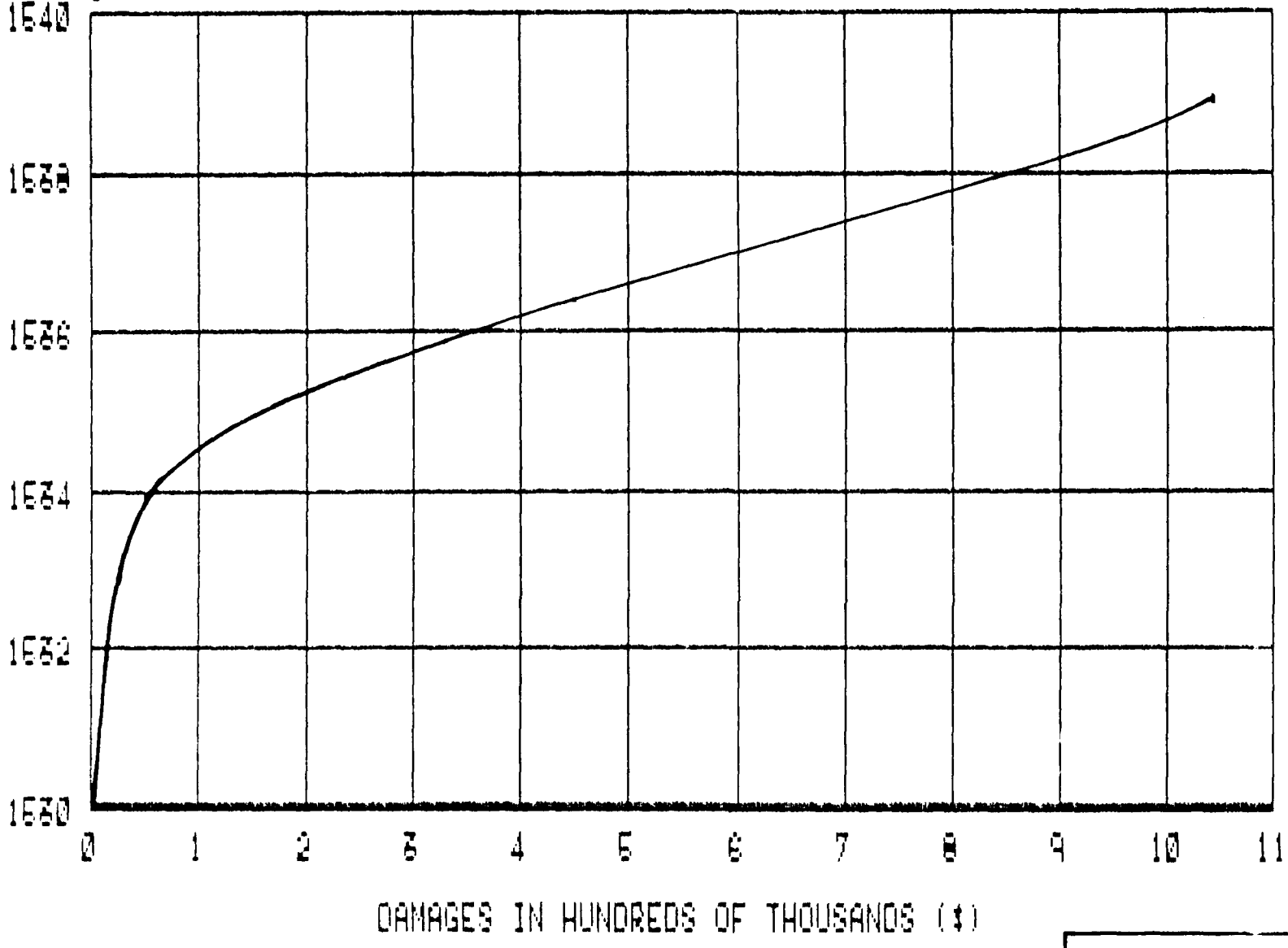
GENESEE RIVER BASIN
FEASIBILITY STUDY
New York and Pennsylvania

STAGE DAMAGE CURVE

REACH 13

U.S.Army Engineer District Buffalo

FIGURE A45



NOTE:
ALL VALUES ARE BASED ON OCT. 1987 PRICE LEVELS.

INDEX POINT AT RIVER MILE 141.1 SHONGO, NY.

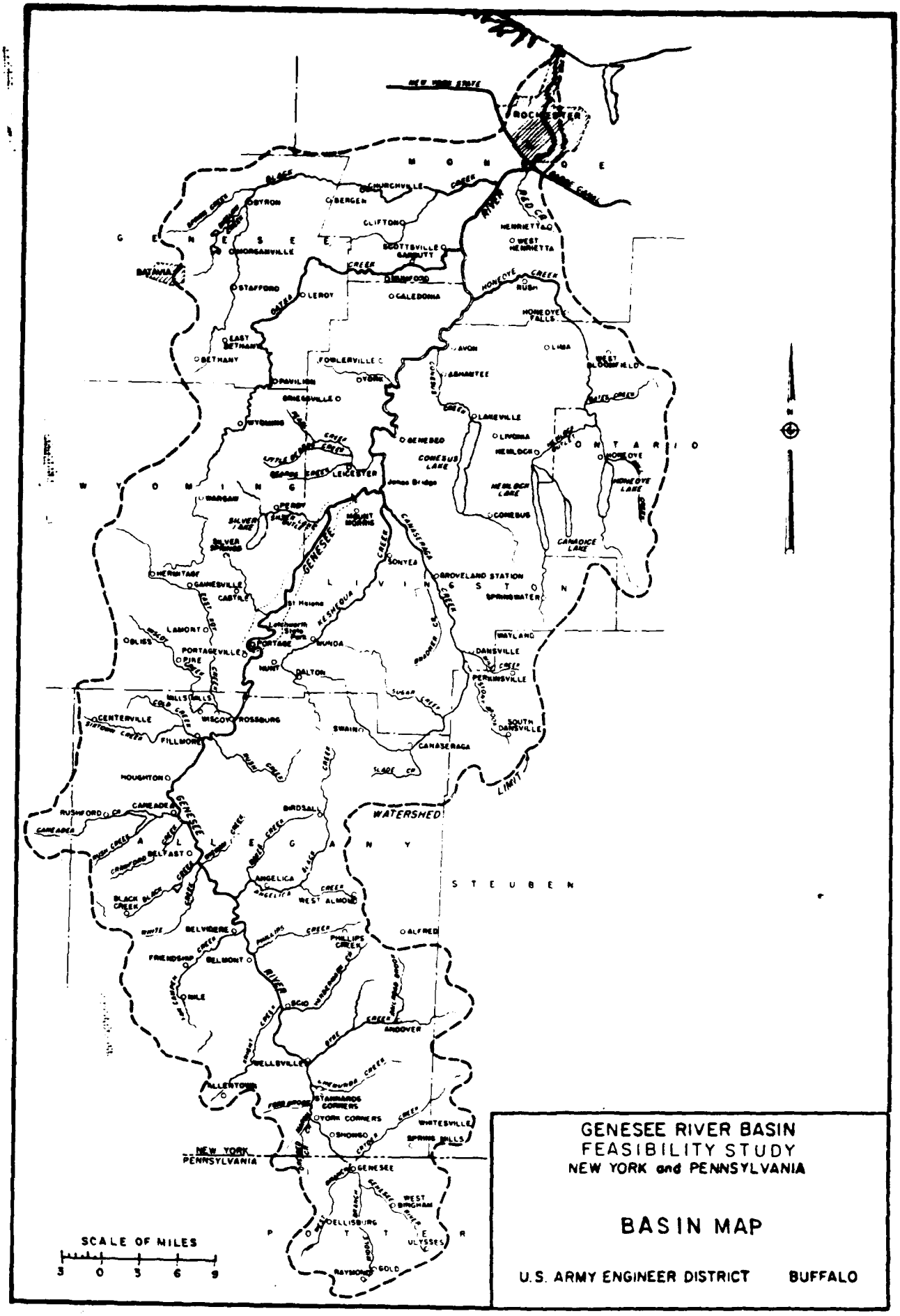
GENESEE RIVER BASIN
FEASIBILITY STUDY
New York and Pennsylvania

STAGE DAMAGE CURVE

REACH 14

U.S.Army Engineer District Buffalo

FIGURE A46

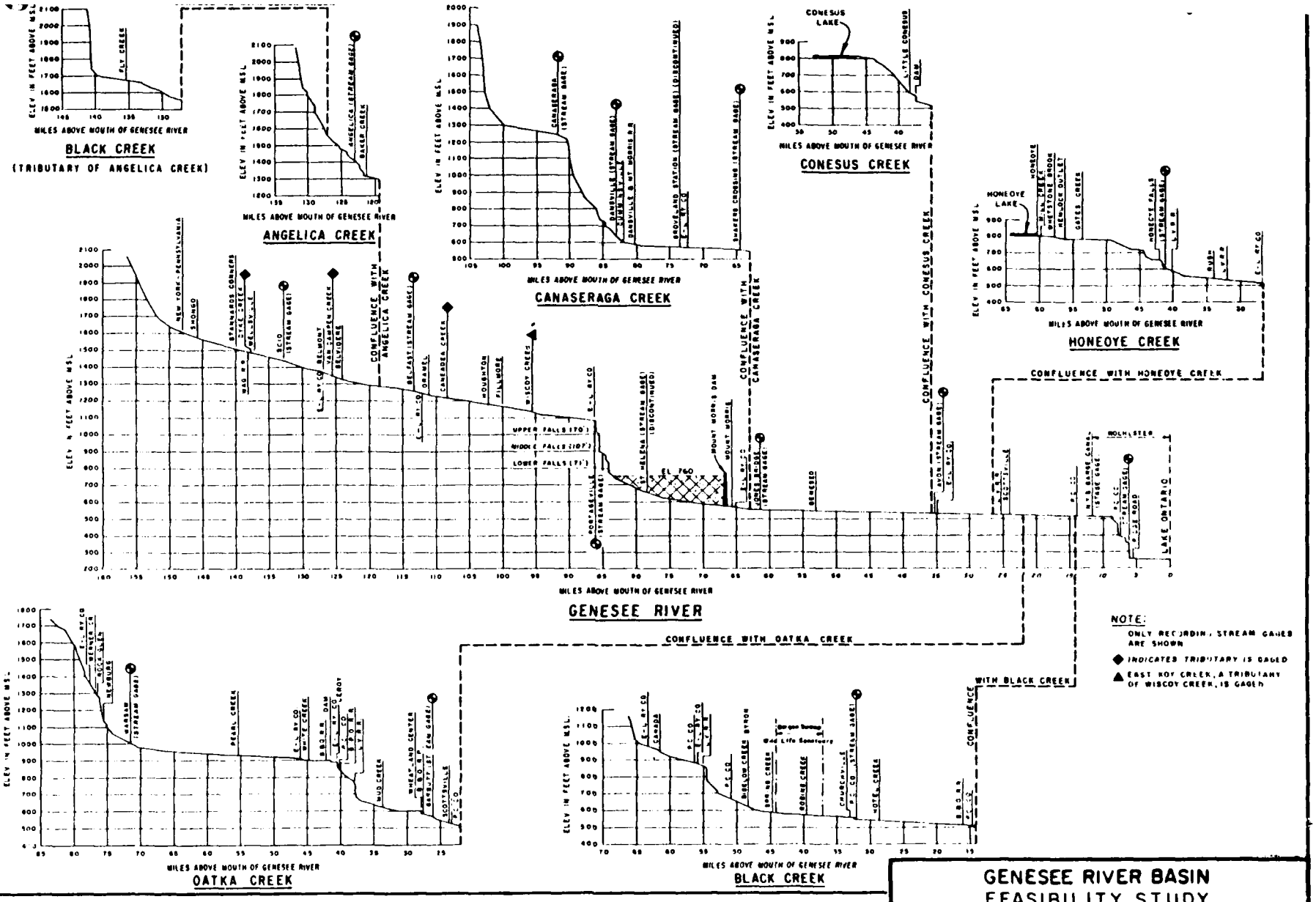


GENESEE RIVER BASIN
FEASIBILITY STUDY
NEW YORK and PENNSYLVANIA

BASIN MAP

U.S. ARMY ENGINEER DISTRICT BUFFALO

PLATE A1

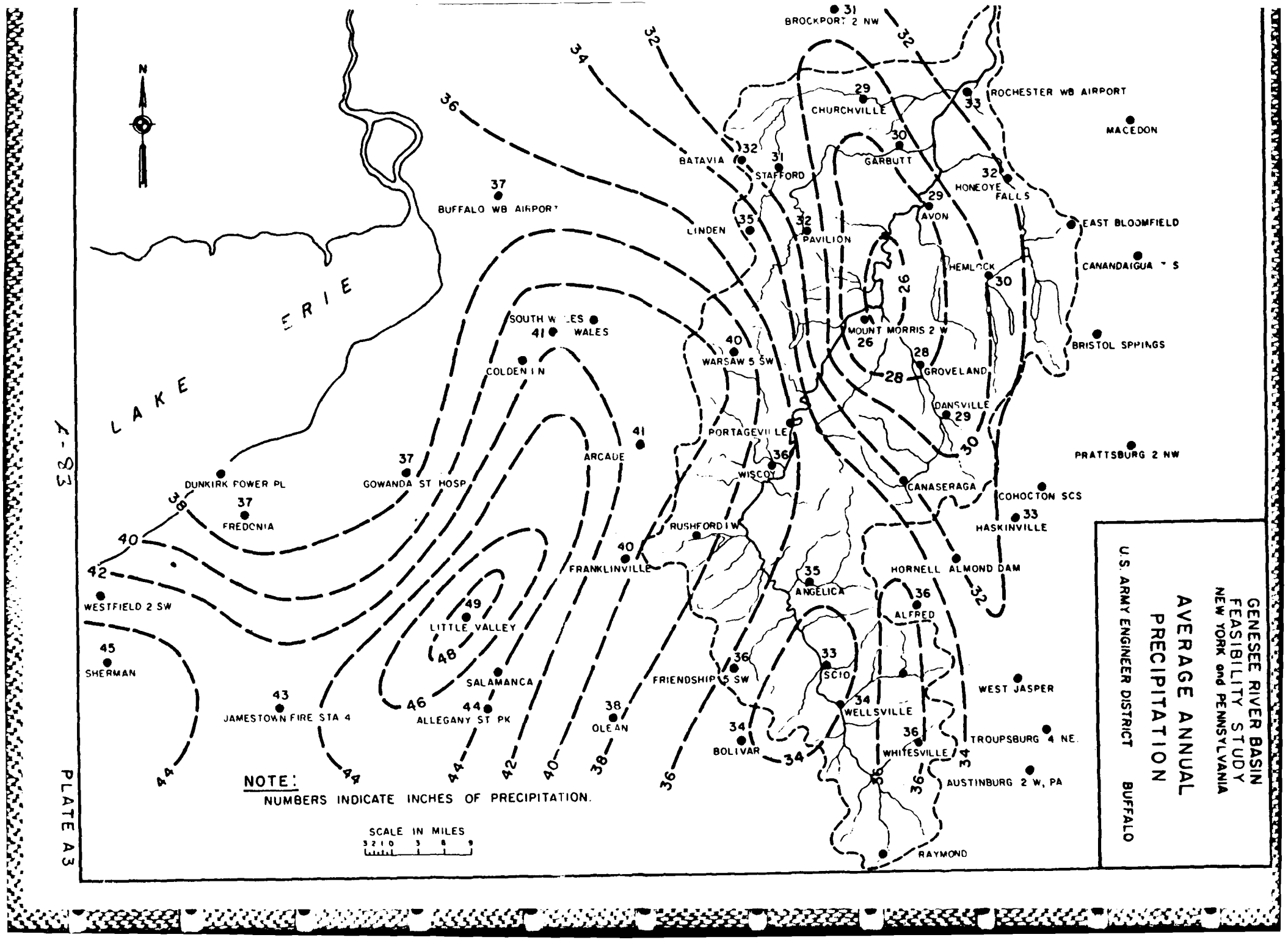


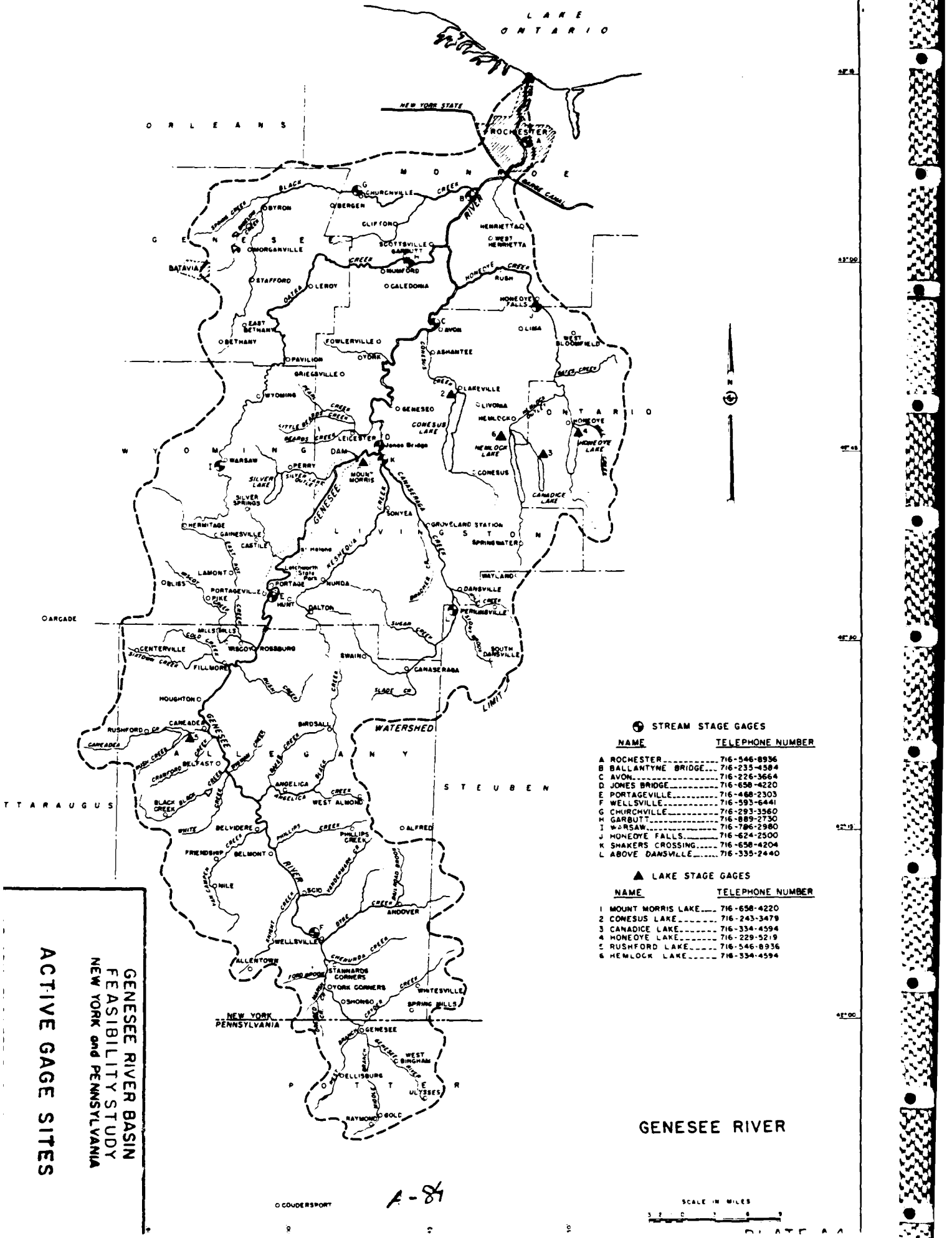
GENESEE RIVER BASIN
FEASIBILITY STUDY
NEW YORK and PENNSYLVANIA

PROFILES OF GENESEE RIVER AND PRINCIPAL TRIBUTARIES

U.S. ARMY ENGINEER DISTRICT BUFFALO

PLATE A 2


N
LAKE ERIE
BROCKPORT 2 NW
ROCHESTER WB AIRPORT
MACEDON
CHURCHVILLE
BATAVIA
STAFFORD
GARBUTT
HONEOYE FALLS
BUFFALO WB AIRPORT
LINDEN
AVON
EAST BLOOMFIELD
PAVILION
HEMLOCK
CANANDAIGUA
SOUTH WALES
WALES
MOUNT MORRIS 2 W
BRISTOL SPRINGS
WARSAW 5 SW
GROVELAND
COLDEN 1 N
DANSVILLE
PORTAGEVILLE
PRATTSBURG 2 NW
ARCADE
WISCOY
CANASERAGA
COHOCTON SCS
DUNKIRK POWER PL
GOWANDA ST HOSP
FREDONIA
HASKINVILLE
RUSHFORD 1 W
FRANKLINVILLE
HORNELL ALMOND DAM
ANGELICA
ALFRED
WESTFIELD 2 SW
LITTLE VALLEY
SHERMAN
SCIO
WEST JASPER
SALAMANCA
FRIENDSHIP 5 SW
WELLSVILLE
JAMESTOWN FIRE STA 4
ALLEGANY ST PK
OLEAN
BOLIVAR
TROUPSBURG 4 NE
WHITESVILLE
AUSTINBURG 2 W, PA
RAYMOND
NOTE:
NUMBERS INDICATE INCHES OF PRECIPITATION.
SCALE IN MILES
3 2 1 0 3 6 9
A-83
PLATE A3
GENESEE RIVER BASIN
FEASIBILITY STUDY
NEW YORK and PENNSYLVANIA
AVERAGE ANNUAL
PRECIPITATION
U.S. ARMY ENGINEER DISTRICT BUFFALO

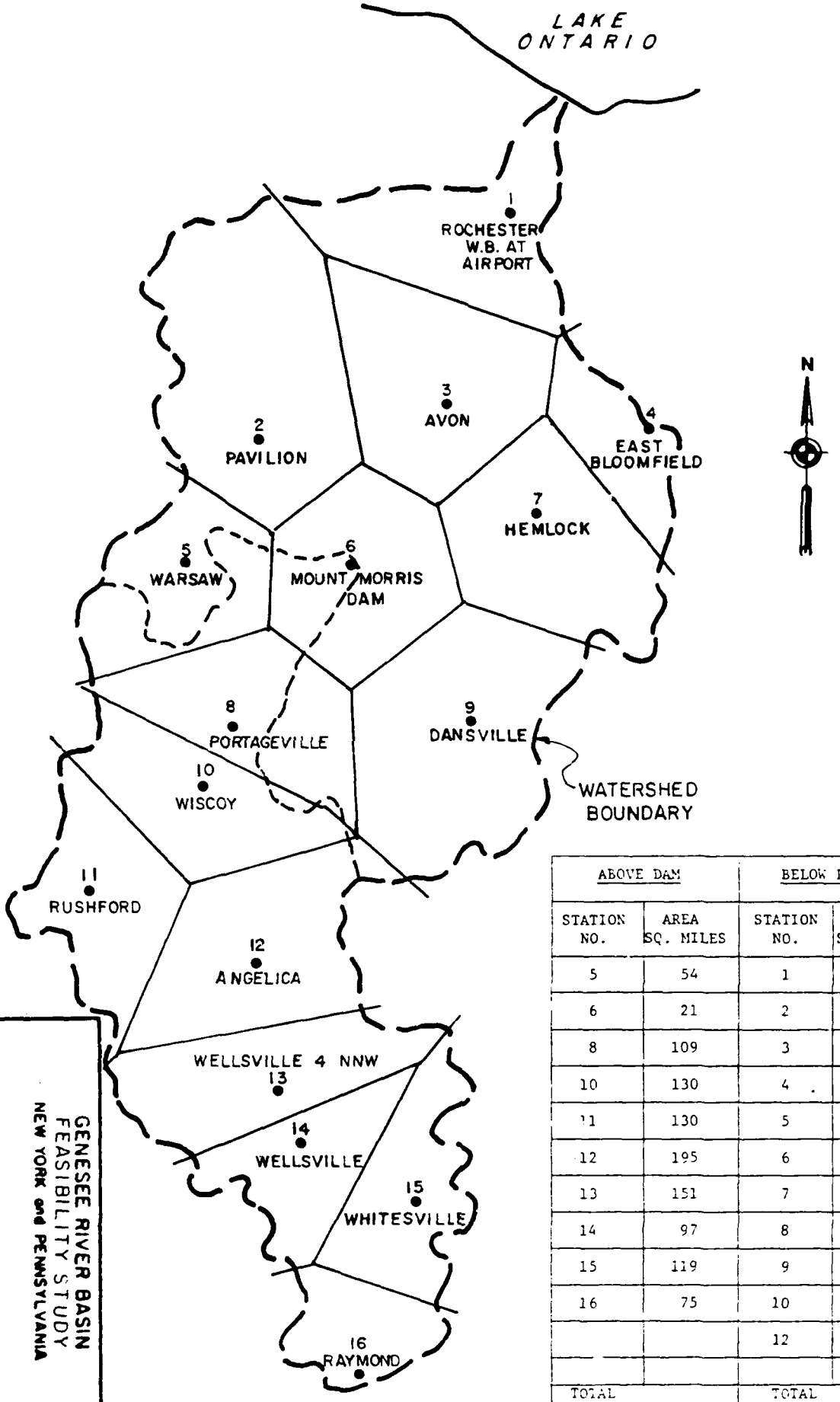


GENESEE RIVER BASIN
FEASIBILITY STUDY
NEW YORK and PENNSYLVANIA

ACTIVE GAGE SITES

A-84

PLATE A-1



ABOVE DAM		BELOW DAM	
STATION NO.	AREA SQ. MILES	STATION NO.	AREA SQ. MILES
5	54	1	156
6	21	2	277
8	109	3	193
10	130	4	73
11	130	5	70
12	195	6	140
13	151	7	182
14	97	8	42
15	119	9	239
16	75	10	14
		12	14
TOTAL SQ. MILES	1080	TOTAL SQ. MILES	1400

GENESEE RIVER BASIN
FEASIBILITY STUDY
NEW YORK and PENNSYLVANIA

PRECIPITATION GAGE SITES

U.S. ARMY ENGINEER DISTRICT BUFFALO

PLATE A5

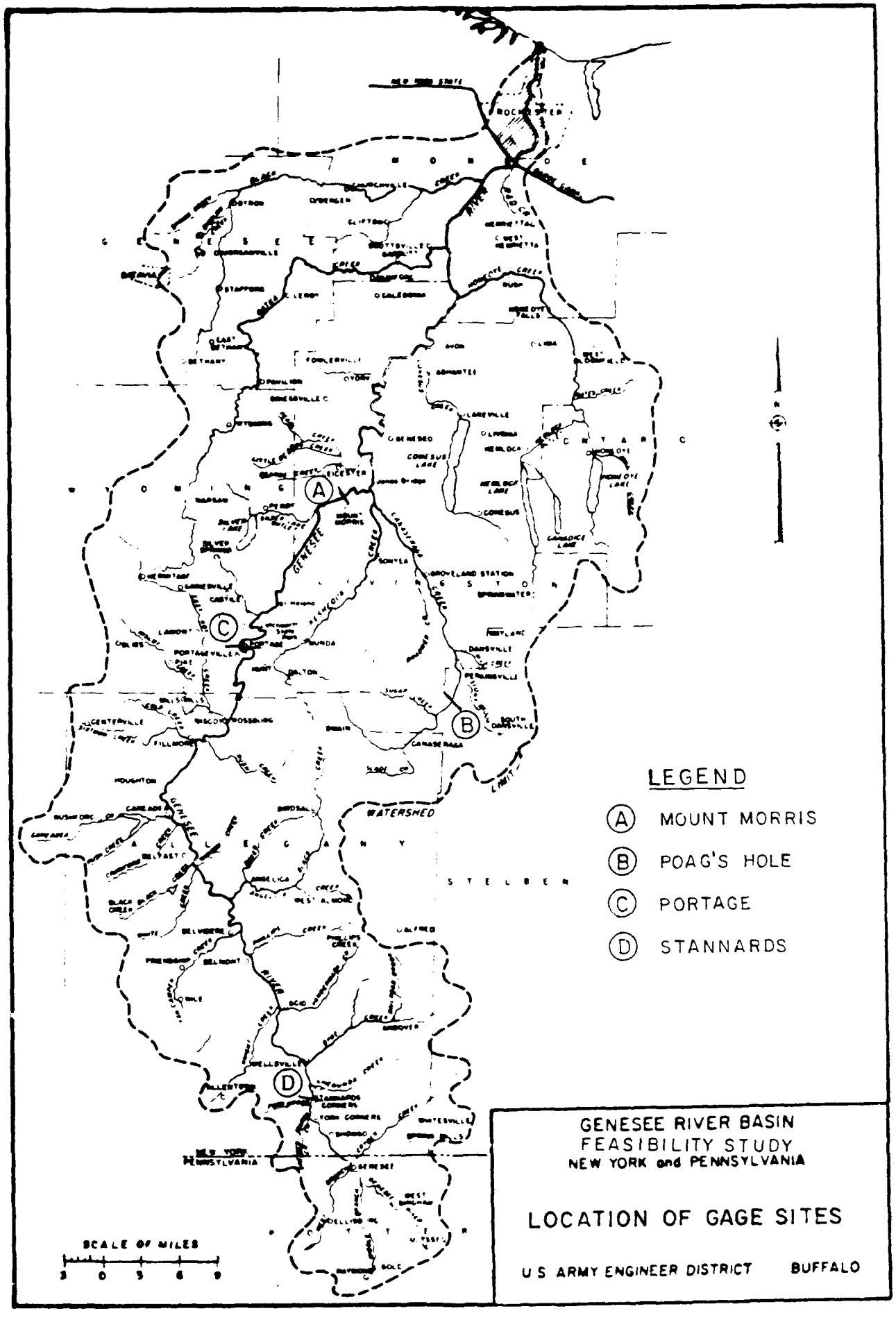
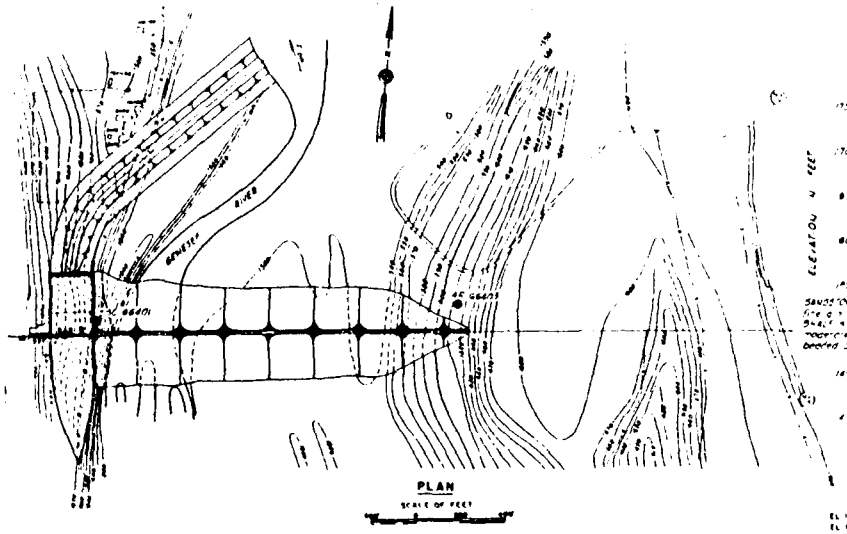
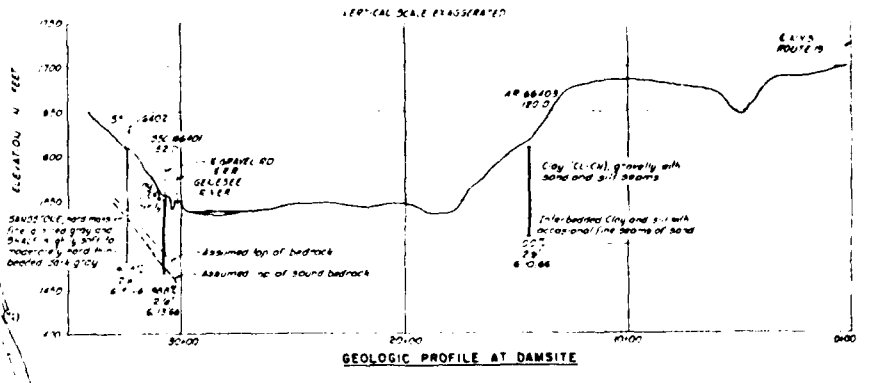
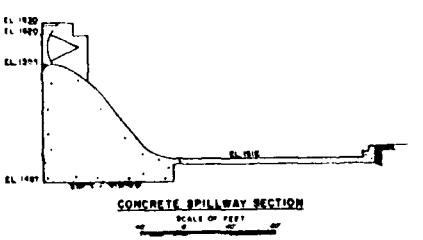
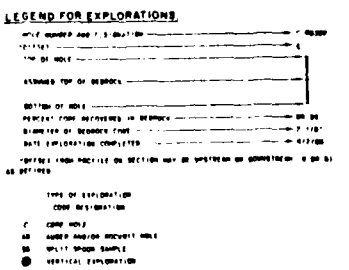

LEGEND
A MOUNT MORRIS
B POAG'S HOLE
C PORTAGE
D STANNARDS
WATERSHED
SCALE OF MILES
3 0 3 6 9
GENESEE RIVER BASIN
FEASIBILITY STUDY
NEW YORK and PENNSYLVANIA
LOCATION OF GAGE SITES
U S ARMY ENGINEER DISTRICT BUFFALO

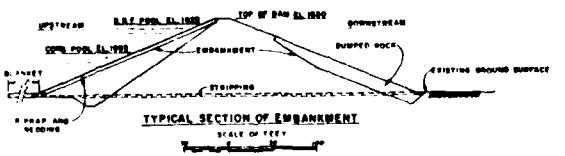
PLATE A6











GENESEE RIVER BASIN
FEASIBILITY STUDY
NEW YORK and PENNSYLVANIA

PLAN VIEW OF STANNARDS

U.S. ARMY ENGINEER DISTRICT BUFFALO

PLATE A 7

PLATE A 7

AD-A197 479 GENESEE RIVER BASIN STUDY VOLUME 2 SUPPORTING DOCUMENTATION(U) CORPS OF ENGINEERS BUFFALO NY BUFFALO DISTRICT JUN 88 2/3

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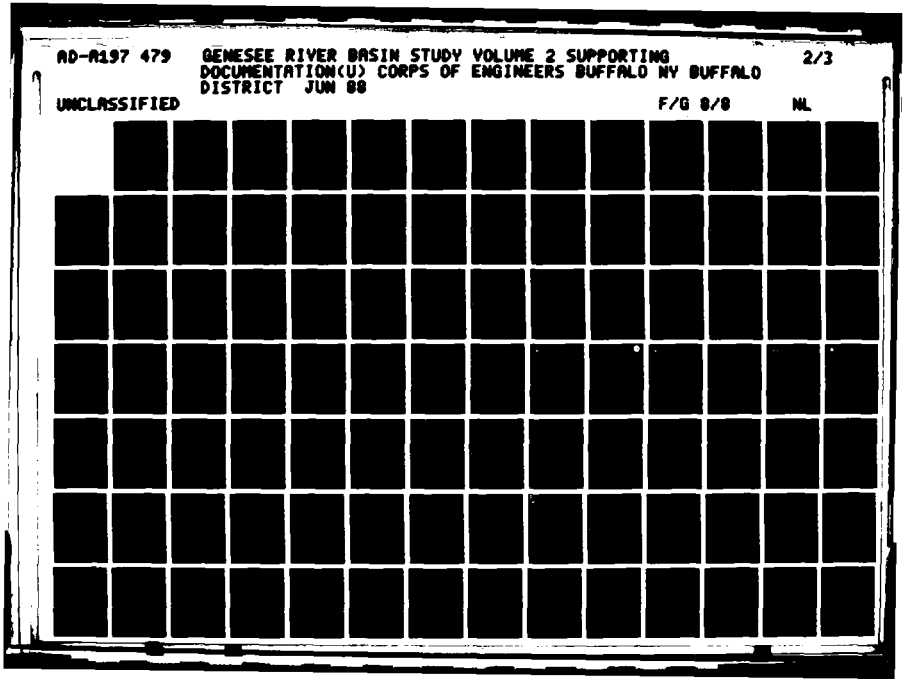
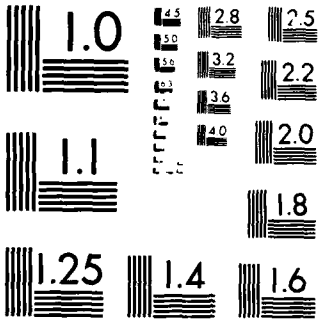
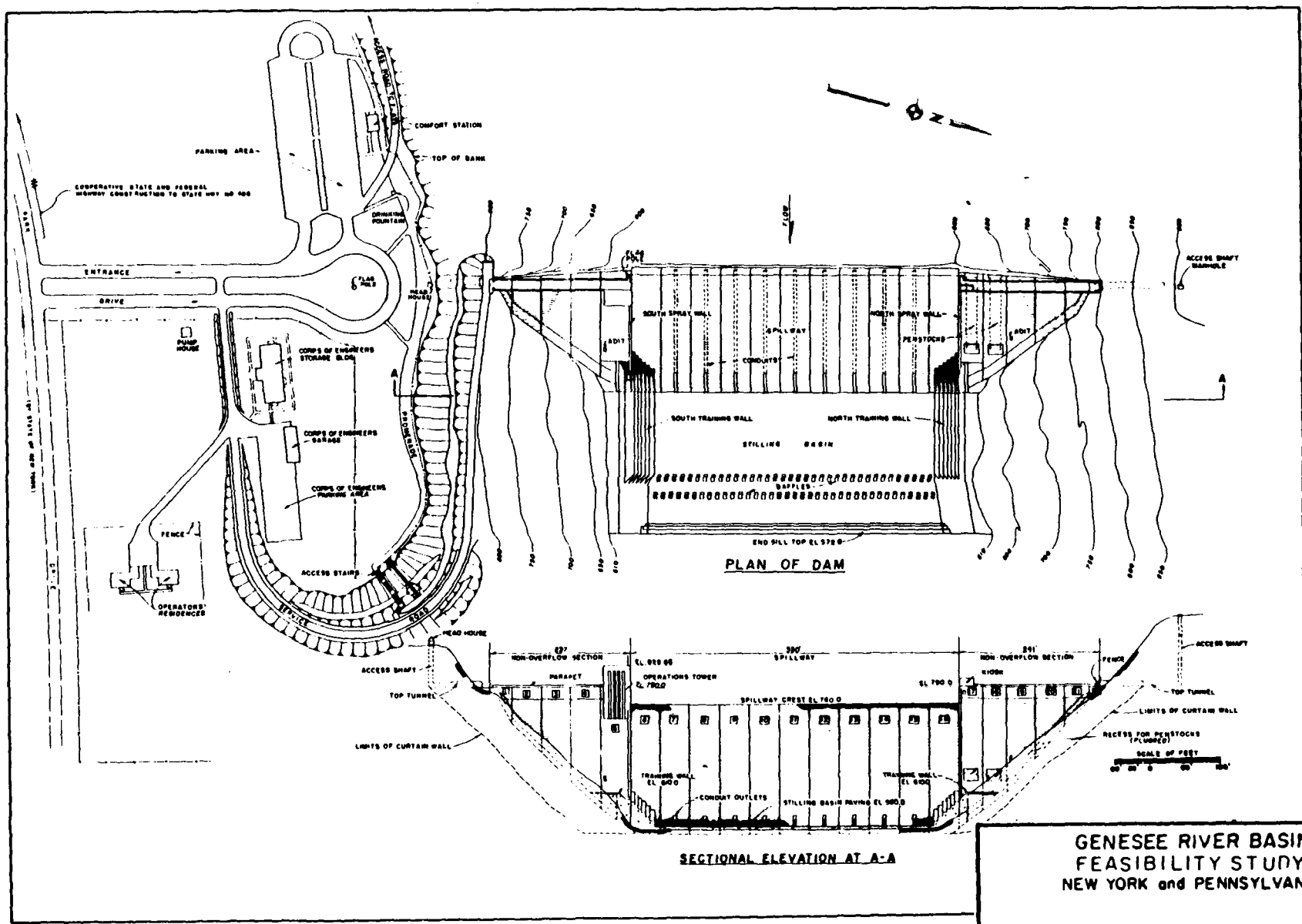






GENESEE RIVER BASIN
FEASIBILITY STUDY
NEW YORK and PENNSYLVANIA

PLAN VIEW OF MOUNT MORRIS

U.S. ARMY ENGINEER DISTRICT BUFFALO

PLATE A8

A-88

APPENDIX B
ECONOMICS

GENESEE RIVER BASIN STUDY
NEW YORK
FINAL FEASIBILITY REPORT

APPENDIX B

ECONOMICS

U.S. Army Engineer District
1776 Niagara Street
Buffalo, New York 14207

APPENDIX B

ECONOMICS

B1. GENESEE RIVER BASIN WATERSHED

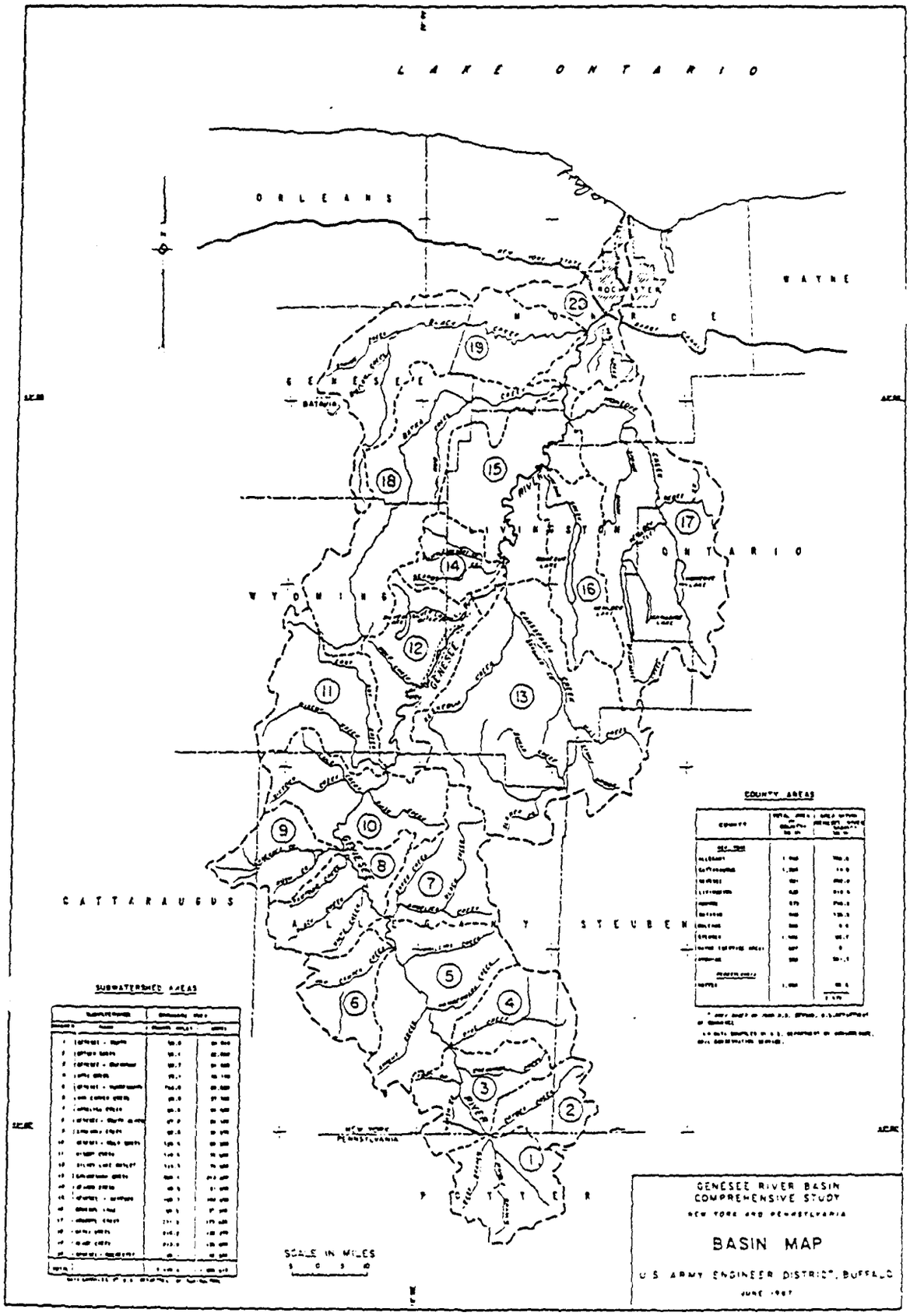
a. Location and Size. The Genesee River Basin is located in Allegany, Genesee, Livingston, Monroe, and Wyoming Counties. The basin encompasses a total drainage area of 2,480 square miles (Figure B1). The watershed is roughly elliptical in shape, with a north-south major axis of approximately 100 miles and a maximum width of 40 miles. The river flows north for about 157 miles to Rochester, New York.

The Genesee River Basin is the watershed of the Genesee River. The headwaters are in extreme north-central Pennsylvania, and flows northward into Lake Ontario. The river descends down the northern edge of the Allegany Plateau. The plateau encompasses about 60 percent of the Genesee River Basin. The plateau consists of rounded hills with intervening valleys. The Genesee flows off of the Allegany Plateau at the Portage escarpment, near the village of Mount Morris. Here the river has a fairly steep gradient. The channel has eroded down through bedrock to form a deep gorge which is occupied by Letchworth State Park. The gorge is a natural reservoir site and Mount Morris Dam has been constructed in the gorge. Mount Morris Dam was built and is operated by the Corps of Engineers as a single function dam. The dam provides flood protection to the lower Genesee River Valley, principally to the city of Rochester and its surrounding suburbs. Flowing down the Portage escarpment, the river exists onto a lake plain before emptying into Lake Ontario. Once on the lake plain, the Genesee River meanders across it at a very low grade. A nearly flat valley, up to three miles wide has been formed. The river than flows into Lake Ontario in the city of Rochester.

The largest tributary of the Genesee River is Canaseraga Creek. This watershed drains 337 square miles. The Creek's basin is roughly square in shape with about 20 miles to a side. The main stem is 42 miles long. Its confluence with the Genesee River is near Jones Bridge, just downstream of Mount Morris. Canaseraga Creek resembles the Genesee River Basin. The Creek's reaches upstream of Dansville are steep and rugged. Downstream of Dansville, the creek flows through a flat alluvial plain to the Genesee River. The major tributaries of the lower basin (the main stem below Mount Morris) are: Canaseraga Creek, Honeoye Creek, Oatka Creek, and Black Creek. Other tributaries of the Genesee River have a wide range in size and topographic characteristics. Information on these tributaries and their drainage areas are presented in the Hydrology and Hydraulics Appendix.

b. Historical Flooding. Damaging floods have occurred in all months of the year except August. Summer floods are generally localized in a part of the watershed caused by convectively usable air conditions. Winter and spring floods are usually the result of frontal precipitation on saturated or frozen ground, or on a melting snow cover. Floods have occurred from melting snow cover alone. Some of the larger floods are: March 1865, March 1875, June 1889, May 1894, April 1896, March 1902, July 1902, March 1913, March 1916, May 1916, December 1927, July 1935, July 1942, March-April 1950, November 1950,

Figure B1-Genesee River Basin



March 1956, March-April 1960, April 1961, June-July 1972, and February-March 1976. Since 1976, most of the flooding in the basin has been limited to the Black and Oatka Watersheds.

B2. PLANS OF IMPROVEMENT

a. Reconnaissance Report Findings. Twelve plans were developed to meet the needs of the basin. The assessment indicated that seven plans, including the "No Action" Plan, warranted further investigation. These plans were evaluated in the feasibility phase.

b. Plans Evaluated. Reconnaissance Report Plans 1, 2, 6, 7, 8, 10, and 11 were evaluated in the feasibility phase. Plan 2 was the "No Action" Plan. However, only Plan 2 and components of Plan 1 and Plan 10 (Plan 10A) were given further consideration. (See the Main Report for further information on Plan 10A). Plan 10A considered adding gates to the top of the spillway of the existing Mount Morris Dam for flood control purposes only. Regulation of outflows was also a component. The Economic Appendix presents the benefits and costs associated with three gate heights: Scenario 1: 12-Foot Gates, Scenario 2: 22-Foot Gates, and Scenario 3: 30-Foot Gates.

The "Plan" calls for the addition of tainter gates on top of Mount Morris' existing spillway. A total of ten tainter gates, 42 feet wide, varying in height from 12 to 30 feet, would be attached to eleven new eight foot wide concrete piers. (See Plate 4, in the Main Report.) A service bridge would span the dam at the top of the bridge. The bridge would be 16 feet wide and consist of precast box beams, 36 inches deep. The height of the gate would vary with the degree of desired flood damage reduction. Several schemes were evaluated for estimating the degree of reduction in average annual damages. These gates would substantially increase the storage available for flood control. This will allow the release of lesser flows to the basin downstream reaches over a longer period of time than is called for under the established reservoir pool evacuation in effect. This would reduce the occurrence of the more frequent, but less severe floods and would minimize erosion rates in the lower basin. Also the less frequent, but more severe floods, like the 1972 "Tropical Storm Agnes," would be more effectively controlled. A more detailed description of Plan 10A components are presented in the Main Report.

B3. PROJECT AREA AND AFFECTED AREA

a. Planning Region. All plans considered for further evaluation are located in the lower basin of the river. Consequently the Planning Region was restricted to those counties in the lower basin. These counties are: Livingston, Monroe, and Wyoming.

b. Project Area. The Planning Region for the Final Feasibility Report consists of the above mentioned three counties. Lands along the main stem of the river in these counties were divided into three reaches: Reaches 4, 3, and 2. These reaches constitute the project area. Reach 4 extends from River Mile 65.5 to 35.3 (From the Rochester Gas and Electric Dam located 1.3 miles downstream of Mount Morris to the Avon Bridge). Reach 3 extends from River Mile 35.3 to 21.1 (From the gate site at Avon Bridge to Browns Bridge). Reach 2 extends from River Mile 21.1 to 11.6 (From Browns Bridge to the New York State Barge Canal).

c. Affected Area. The area affected by the proposed plans consist of the flood plain in the three reaches plus all nearby areas likely to serve as an alternative site for any major type of activity that might use the flood plain if it were protected.

B4. PROJECTED LAND USE ON THE FLOOD PLAIN

a. Without Plan Conditions of Development. Again, the project area consists of the flood plain in the three reaches plus all nearby areas likely to serve as an alternative site for any major activity that might use the flood plain if it were protected. Basic economic data for the Planning Region was developed to determine "Without Plan" condition land use patterns.

1. Economic Variables - Table B4.1 presents projections of such basic economic variables as population, employment, and personal income per capita for the three county Planning Region. Population shows a little over .3 percent annual growth from 1980 to 2035. Employment is projected to grow around .43 percent annually. Personal income per capita shows a 1 percent annual growth rate.

Table B4.1 - Projections of Basic Economic Variables in the Lower Genesee River Basin's Planning Region (1) (2)

Date	Population	Employment	Personal Income Per Capita
1980	799,139	359,353	$ 10,227
1985	815,900	383,482	$ 10,680
1990	855,000	418,900	$ 11,920
2000	900,200	459,100	$ 13,530
2015	942,400	471,200	$ 15,420
2035	967,000	454,500	$ 18,320

(1) The counties of the lower Genesee River Basin include: Livingston, Monroe, and Wyoming.

(2) Projections are based on projected values for Upstate New York (New York State minus counties of the New York State portion of the New York PMSA) presented in Volumes 1 and 2 of 1985 OBERS, BEA Regional Projections.

2. Land Use Data - The data in Table B4.2 reflects land use patterns in the Genesee River Basin on a county wide basis. Counties looked at include Allegany, Genesee, Livingston, Monroe, and Wyoming. With the exception of Monroe, all of the counties are predominantly rural counties.

Land use data based on Minor Civil Divisions (MCD's) with the five counties was also derived (River Strip Analysis). The land use data for MCD's in Allegany, Genesee, Livingston, and Wyoming Counties come from New York State Land Use and Natural Resource Inventory, 1968. Land use data for the MCD's in Monroe County are based upon 1982 data derived from the Assessment Roll and Levy Module provided by the Monroe County of Planning.

Table B4.2 is believed to provide a reasonable reflection of current land use patterns in the MCD's of the three counties in the lower basin. A degree of judgement was used in developing these estimates. Land use percentages developed in Table B4.2 were compared to land use percentages for Livingston County alone (Table B4.3). Livingston County land use is representative of agricultural land use in the lower basin of the Genesee River. Comparison of the two tables indicate Table B4.2 does provide a reasonable estimate of land use in the lower basin of the Genesee River.

Finally, Table B4.4 presents land use projections for the counties in the Genesee River Basin. Table B4.4 highlights the relative stability of the "Agriculture" and "Forest" land use category. The conclusion of Table B4.2 to B4.4 is current land use patterns will not change dramatically in the future in the lower basin. The lands will continue to be predominantly agricultural and forest in nature (77 percent in 1980 and 75 percent in 2035). This is especially true of Livingston County.

Table B4.2 - Land Use Patterns in the Genesee River Basin (1)

	Three Counties		River Strip (2)	
	Square Miles	Percent	Square Miles	Percent
Land Use Category	1	2	3	4
Agriculture	1,649	42.85	339	38.83
Forest	1,337	34.75	297	34.02
Wetlands	148	3.85	13	1.49
Water	52	1.35	13	1.49
Residential	130	3.38	58	6.64
Commercial	14	.36	9	1.03
Industrial	13	.34	5	.57
Extractive	60	1.56	10	1.15
Public & Semi-Public	25	.65	13	1.49
Outdoor Recreation	52	1.35	30	3.44
Transportation	16	.42	8	.92
Non-productive	352	9.15	78	8.93
All Land Uses	3,848	100.00	873	100.00

SOURCE: New York State Land Use and Natural Resource Inventory, 1968.

NOTES:
(1) Six counties include: Allegany, Genesee, Livingston, Monroe, Orleans, and Wyoming.

(2) Genesee River Strip includes: the municipalities, towns, and the city of Rochester, through which the Genesee River flows.

Table B4.3 - Land Use in Livingston County

Land Use Category	Area (Square Miles)	Area (Percent)
Agriculture	356.06	55.8
Woodlands	193.34	30.3
Wetlands	8.29	1.3
Waterbodies	9.57	1.5
Residential	9.57	1.5
Commercial	1.28	.2
Industrial	.64	.1
Extractive	1.28	.2
Public & Semi-Public	3.83	.6
Outdoor Recreation	14.04	2.2
Transportation	.64	.1
Non-productive	39.56	6.2
All Land Uses	638.10	100.0

SOURCE: New York State Land Use and Natural Resource Inventory, 1968.

Table B4.4 - Land Use Projections in the Counties of the Genesee River Basin (1) (2)

Land Use Category	Percent of Total Land Use				
	1968	1980	2000	2015	2035
Agriculture	42.8	42.3	41.5	40.8	40.0
Forests	34.8	34.7	34.5	34.6	35.0
Urban (3)	5.1	5.3	5.5	5.7	6.0
Conservation & Recreation	6.5	6.6	6.7	6.8	6.9
Other Uses (4)	10.8	11.1	11.8	12.1	12.1
Total	100.0	100.0	100.0	100.0	100.0

NOTES:

(1) The counties of New York encompassed by the Genesee River Basin have been defined to include: Allegany, Genesee, Livingston, Monroe, and Wyoming.

(2) Projections based on 1968 LUNR data: projections developed by the Economics Branch, Buffalo District.

(3) Urban land use has been defined to include LUNR categories of: residential, commercial, industrial, public and semi-public, and transportation uses.

(4) Other Uses include: the LUNR category of non-productive use and extractive use.

b. With Plan Condition of Development. The previous section evaluated land use and indicated that no future change is expected in the project area. Livingston and Wyoming Counties will continue to be predominantly rural in nature. The portion of Monroe County in the lower basin will show some growth in residential use. However, based upon development patterns of the last 15 years, development will be confined to the non-flood plain areas of Reach 2.

B5. URBAN FLOOD DAMAGES AND BENEFITS

a. Introduction. The previous section evaluated land use and indicated that no future change is expected in the flood plain area of the three reaches. Most of the flood damage is the result of first floor flooding of residences and commercial establishments.

Public and other damages include damages to public buildings and contents (police stations, firehouses, churches, schools), as well as roads in the project area. Also included in these damages are public sector emergency services and cleanup costs. Repair work to structures and roads are made upon the return of normal water conditions. Urban flood benefits will be the difference between "Without Project" urban flood damages and "With Project" urban flood damages. The "With Project" flood damages will look at three variations of gate height: Scenario 1: 12-foot gates, Scenario 2: 22-foot gates, and Scenario 3: 30-foot gates.

b. "Without Project" Conditions Damages. Urban damages includes residential structure and content damages, commercial structure and content damages, and public and other damages (public structures, contents, emergency services, cleanup costs, and infrastructure repair).

1. Damages Under Existing Conditions -

(a) Introduction. The best information available on damages in the lower Genesee River Basin is contained in the Flood Report on Tropical Storm Agnes. Damage estimates for the lower basin (Reaches 2, 3, and 4) were revised to reflect current conditions based on field surveys and interviews performed in 1987 and 1988. Price levels were updated to January 1988 price levels. Table B5.1 presents study year 1988 existing urban inundation damages for the three reaches of the lower basin.

(b) Methodology. Flood stages and corresponding damages at various water levels were calculated and plotted for each of the three reaches at their respective index points. These points were used to develop stage damage curves for each land use activity taking place at each of the three reaches. The Hydraulic Design Appendix explains the derivation of stage damage curves for the three reaches.

All commercial damage estimates are based upon personal interviews with the commercial establishments in the project area during 1972 and updated to January 1988 price levels. The interview included estimated damages to structures, inventory and machinery, lost wages, and expected cleanup costs. During the interviews the overall conditions of the building and equipment were identified. Also identified was the type and value of inventory and its susceptibility to being damaged by flood water relative to the first floor elevation of the individual structures.

Residential damages were estimated at various flood depths based on established Buffalo District depth-percent-damage relationships for typical residential structures in the project area. First floor elevations, type of structure, and value of structure were used to determine damages at various depths.

Public and other damages include flood clean-up costs on public roads and buildings, repairs to utilities and roads, emergency evacuation costs (additional on duty time for police, firemen, etc.), and temporary emergency shelter and relief costs (Red Cross). Estimates of these costs were updated to reflect 1988 price levels.

(c) Existing Average Annual Damages, Without Project Conditions, Study Year 1988 Conditions of Development. Average annual damages are the expected value of flood damages for any given year. Discharge-frequency curves and stage discharge curves were developed for each land use activity type located in the three reaches. These curves were used with stage damage curves to determine damage frequency relationships existing under 1988 study year conditions of development. The resulting existing "Without Project" average annual damages at January 1988 levels of development and prices are presented in Table B5.1. Existing "Without Project" average annual damages at January 1988 levels of development and prices are $1,014,300 (Table B5.1, Existing 1988). This is total average annual damages for Reaches 2, 3, and 4.

(d) Existing Average Annual Damages, Without Project Conditions, Base Year 1995. "Without Project" damages as of the study year (January 1988) were projected to the Base Year 1995. Residential content damages at the study year (1988) were adjusted to reflect the projected increase in the real value of residential contents between the study year (1988) and the base year (1995) of the project. This adjustment was based upon the real increases in regional per capita income between the study year and base year.

Existing "Without Project" average annual damages as of the base year, 1995, are presented in Table B5.1 in the column labeled "Base Year, 1995." The respective existing average annual damages, in January 1988 prices, by reach are: Reach 2: $494,000; Reach 3: $406,000; Reach 4: $123,600.

2. Damages Under Future Conditions - An evaluation of the potential for future growth in land use at each of the three reaches (Section B4. PROJECTED LAND USE ON THE FLOOD PLAIN) indicated there would be no change in land use in the three reaches. However, future residential content damages will rise due to an increase in residential content value over time. The value of residential contents is expected to increase as a result of rising regional per capita income. As people have more money available for personal consumption, they tend to increase the value of their stock of personal property. This increase in value is a direct result of regional per capita income growing over time. this increase in residential content value is calculated as follows.

Current guidance states residential content value can rise to 75 percent of structure value. The value of residential contents to residential structures during the study year (January, 1988), was estimated as 33 percent. The value of these contents are then allowed to grow at a given percent per year. This growth rate is assumed to equal regional per capita income growth. All of the urban damages evaluated were outside of the city of Rochester. It was felt the

percent change in regional per capita income for the Rochester SMSA would not be representative of the basin's affluence growth rate. A proxy for income growth for the lower basin was devised. New York PMSA income and population levels were subtracted from total New York State income and population levels (1985 OBERS BEA Regional Projections). The residuals were assumed to equal the lower basins affluence growth rate. This resulted in a per capita income value of $10,334 in 1983 and a $15,766 per capita income value in the year 2035. Per capita income will increase at an annual compound growth rate of 1.12815 percent. It is assumed that residential content growth occurs at the same rate as the regional per capita income growth rate. Given a 1.12815 percent compound growth rate, residential content value will increase to 75 percent in 73 years. Residential contents would need to grow from 1988 (year of the project evaluation) to 2061 for the ratio of residential content value to structural value to equal 75 percent. Residential content value growth was allowed to grow to Project Year 50 (2045). Residential content value was straightlined thereafter.

$$(1 + r)^n = Xt/Xi$$

$$n = \frac{Ln(Xt/Xi)}{Ln(1 + r)}$$

$$n = \frac{Ln(.75/.33)}{Ln(1.0112815)}$$

$$n = 73$$

WHERE:

n = Number of years residential contents will increase in value
r = Compound growth rate (1.0112815)
Xt = Ratio of content value to structural value in the terminal year of growth.
Xi = Ratio of content value to structural value in the initial year of growth.

Table B5.1 shows the projected growth of "Existing Condition" residential content damages for a 100 year evaluation period, starting from the Base Year 1995 to the Terminal Year 2095. Total "Existing Condition" average annual residential content damages are $136,600.

The average annual value of existing residential content damages for Reaches 2, 3, and 4 came to $118,300, $13,700, and $4,600.

Table B5.1 presents "Without Project" total average annual urban damages for Reaches 2, 3, and 4. These damages came to $517,400; $408,700; and $124,500, respectively. "Without Project" average annual urban damages for all three reaches came to $1,050,600.

c. Residual Average Annual Damages.

1. Introduction - "Without Project" damages were calculated up to the .2 percent chance occurrence (500-year event). However, the three "Scenarios"

proposed will not eliminate all of the damages occurring in these three reaches. Therefore, existing and future damages (growth in residential content value) were developed under "With Project" conditions for the three scenarios. These total "With Project" average annual damages by scenario are presented in Table B5.2. These damages reflect January 1988 price levels and conditions of development, an 8-5/8 percent annual interest rate, and a 100 year evaluation period (1995-2095).

2. Plan 10A: Scenario 1: 12-Foot Gates - Residual average annual urban flood damages for Reaches 2, 3, and 4 came to $365,100, $276,600, and $34,500. Total residual average annual urban flood damages for all three reaches came to $676,200.

3. Plan 10A: Scenario 2: 22-Foot Gates - Residual average annual urban flood damages for Reaches 2, 3, and 4 came to $285,200, $207,200, and $0. Total residual average annual urban flood damages for all three reaches came to $492,400.

4. Plan 10A: Scenario 3: 30-Foot Gates - Residual average annual urban flood damages for Reaches 2, 3, and 4 came to $136,700, $115,100, and $0. Total residual average annual urban flood damages for all three reaches came to $251,800.

d. Other Costs of Using the Flood Plain. The impact of flooding on existing occupants is not limited to flood losses alone. Other incurred costs may also be NED losses.

1. Floodproofing Costs - Floodproofing costs avoided are the reduction in future floodproofing costs due to a specific Flood Control Scenario being implemented. Implementation of a scenario would reduce the susceptibility of residential, commercial, and public structures to flood damages. Since the Scenario is to be implemented, the need to floodproof would diminish. These floodproofing costs can be claimed as a benefit for the implementation of the Scenario. Since new development in the flood plain area itself is projected to be minimal, under "Without Project" and "With Project" conditions, these added costs would be negligible.

2. National Flood Insurance Costs - A National Flood Insurance Program is available to protect the individual in participating communities from extreme financial loss in the event of a disastrous flood. Savings of flood insurance operating costs can be credited to the NED benefit account. This happens when a project eliminates inundation of an area due to floods having an exceedence frequency of 1 percent or less. The national cost of the Flood Insurance Program is its administration costs. However, implementation of any of the Scenarios would not induce local flood plain residents to allow their flood insurance to lapse. Thus, there is no savings of flood insurance operating costs credited to these Scenarios.

3. Modified Use - In some cases the flood hazard has caused structures to be used less efficiently than they would be with a project. No such underutilization of structures under existing conditions has been identified in the three reaches.

Table B5.1 - "Without Project" Conditions Exisitng and Future Flood Damages by Decade With Affluence (January 1988 Price Levels and 8.625 Percent Annual Interest Rate)

	Existing 1988	Base Year 1995	2005	2015	2025	2035	2045	2095	AAE
REACH 2									
Residential									
Structure	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0	263.0
Content	86.8	94.9	106.2	118.8	132.9	148.7	166.4	166.4	118.3
Total	349.8	357.9	369.2	381.8	395.9	411.7	429.4	429.4	381.3
Commercial	97.2	97.2	97.2	97.2	97.2	97.2	97.2	97.2	97.2
Public & Other	38.9	38.9	38.9	38.9	38.9	38.9	38.9	38.9	38.9
Reach Total	485.9	494.0	505.3	517.9	532.0	547.8	565.5	565.5	517.4
REACH 3									
Residential									
Structure	30.5	30.5	30.5	30.5	30.5	30.5	30.5	30.5	30.5
Content	10.1	11.0	12.3	13.8	15.4	17.2	19.3	19.3	13.7
Total	40.6	41.5	42.8	44.3	45.9	47.7	49.8	49.8	44.2
Commercial	251.1	251.1	251.1	251.1	251.1	251.1	251.1	251.1	251.1
Public & Other	113.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4
Reach Total	405.1	406.0	407.3	408.8	410.4	412.2	414.3	414.3	408.7
REACH 4									
Residential									
Structure	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2
Content	3.4	3.7	4.1	4.6	5.2	5.8	6.4	6.4	4.6
Total	13.6	13.9	14.3	14.8	15.4	16.0	16.6	16.6	14.8
Commercial	55.4	55.4	55.4	55.4	55.4	55.4	55.4	55.4	55.4
Public & Other	54.3	54.3	54.3	54.3	54.3	54.3	54.3	54.3	54.3
Reach Total	123.3	123.6	124.0	124.5	125.1	125.7	126.3	126.3	124.5
Total									1,050.6

Table B5.2 - "With Project" Conditions Exisitng and Future Flood Damages by Decade With Affluence (January 1988 Price Levels and 8.625 Percent Annual Interest Rate)

	Existing 1988	Base Year 1995	2005	2015	2025	2035	2045	2095	AAE
Plan 10A: Scenario 1: 12-Foot Gates - Residual Damages									
REACH 2									
Residential									
Structure	185.6	185.6	185.6	185.6	185.6	185.6	185.6	185.6	185.6
Content	61.2	66.9	74.9	83.8	93.7	104.8	117.3	117.3	83.4
Total	246.8	252.5	260.5	269.4	279.3	290.4	302.9	302.9	269.0
Commercial	68.6	68.6	68.6	68.6	68.6	68.6	68.6	68.6	68.6
Public & Other	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5
Reach Total	342.9	348.6	356.6	365.5	375.4	386.5	399.0	399.0	365.1
REACH 3									
Residential									
Structure	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6
Content	6.8	7.5	8.3	9.3	10.4	11.7	13.1	13.1	9.3
Total	27.4	28.1	28.9	29.9	31.0	32.3	33.7	33.7	29.9
Commercial	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0
Public & Other	76.7	76.7	76.7	76.7	76.7	76.7	76.7	76.7	76.7
Reach Total	274.1	274.8	275.6	276.6	277.7	279.0	280.4	280.4	276.6
REACH 4									
Residential									
Structure	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
Content	.9	1.0	1.1	1.2	1.4	1.5	1.7	1.7	1.2
Total	3.7	3.8	3.9	4.0	4.2	4.3	4.5	4.5	4.0
Commercial	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4
Public & Other	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1
Reach Total	34.2	34.3	34.4	34.5	34.7	34.8	35.0	35.0	34.5
Total									676.2

Table B5.2 - "With Project" Conditions Exisitng and Future Flood Damages by Decade With Affluence (January 1988 Price Levels and 8.625 Percent Annual Interest Rate) (Cont'd)

	Existing 1988	Base Year 1995	2005	2015	2025	2035	2045	2095	AAE
Plan 10A: Scenario 2: 22-Foot Gates - Residual Damages									
REACH 2									
Residential									
Structure	145.1	145.1	145.1	145.1	145.1	145.1	145.1	145.1	145.1
Content	47.8	52.2	58.4	65.4	73.1	81.1	91.5	91.5	65.1
Total	192.9	197.3	203.5	210.5	218.2	226.9	236.6	236.6	210.2
Commercial	53.5	53.5	53.5	53.5	53.5	53.5	53.5	53.5	53.5
Public & Other	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5
Reach Total	267.9	272.3	278.5	285.5	293.2	301.9	311.6	311.6	285.2
REACH 3									
Residential									
Structure	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4
Content	5.1	5.6	6.3	7.0	7.9	8.8	9.8	9.8	7.0
Total	20.5	21.0	21.7	22.4	23.3	24.2	25.2	25.2	22.4
Commercial	127.4	127.4	127.4	127.4	127.4	127.4	127.4	127.4	127.4
Public & Other	57.4	57.4	57.4	57.4	57.4	57.4	57.4	57.4	57.4
Reach Total	205.3	205.8	206.5	207.2	208.1	209.0	210.0	210.0	207.2
REACH 4									
Residential									
Structure	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Content	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Commercial	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public & Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Reach Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total									492.4

Table B5.2 - "With Project" Conditions Exisitng and Future Flood Damages by Decade With Affluence (January 1988 Price Levels and 8.625 Percent Annual Interest Rate) (Cont'd)

	Existing 1988	Base Year 1995	2005	2015	2025	2035	2045	2095	AAE
Plan 10A: Scenario 3: 30-Foot Gates - Residual Damages									
REACH 2									
Residential									
Structure	69.5	69.5	69.5	69.5	69.5	69.5	69.5	69.5	69.5
Content	22.9	25.1	28.0	31.4	35.1	39.3	43.9	43.9	31.2
Total	92.4	94.6	97.5	100.9	104.6	108.8	113.4	113.4	100.7
Commercial	25.7	25.7	25.7	25.7	25.7	25.7	25.7	25.7	25.7
Public & Other	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3
Reach Total	128.4	130.6	133.5	136.9	140.6	144.8	149.4	149.4	136.7
REACH 3									
Residential									
Structure	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6
Content	2.8	3.1	3.5	3.9	4.3	4.9	5.4	5.4	3.8
Total	11.4	11.7	12.1	12.5	12.9	13.5	14.0	14.0	12.4
Commercial	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8
Public & Other	31.9	31.9	31.9	31.9	31.9	31.9	31.9	31.9	31.9
Reach Total	114.1	114.4	114.8	115.2	115.6	116.2	116.7	116.7	115.1
REACH 4									
Residential									
Structure	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Content	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Commercial	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public & Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Reach Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total									251.8

e. NED Urban Inundation Benefits. Urban inundation reduction benefits accrue to the existing residential, commercial and public, and other activities located in the project area. Residential benefits include affluence applicable to residential contents.

Each Scenario's urban inundation reduction benefit is arrived at by subtracting from average annual urban inundation damages under "Without Project" conditions (Table B5.1) each Scenario's corresponding "With Project" residual urban inundation average annual damages (Table B5.2). This is performed in Table B5.3. Annual urban inundation benefits for Scenario 1: 12-foot gates, Scenario 2: 22-foot gates, and Scenario 3: 30-foot gates came to $374,400, $558,200, and $798,800, respectively.

Table B5.3 - Average Annual Urban Inundation Reduction Benefits (1)

Damage Categories	Without Project Average Annual Urban Inundation Damages	With Project Average Annual Urban Inundation Damages	With Project Average Annual Urban Inundation Benefits
Plan 10A: Scenario 1: 12-Foot Gates			
Residential			
Structure	$ 303,700	$ 209,000	$ 94,700
Content	$ 136,600	$ 93,900	$ 42,700
Subtotal	$ 440,300	$ 302,900	$ 137,400
Commercial	$ 403,700	$ 254,000	$ 149,700
Public & Other	$ 206,600	$ 119,300	$ 87,300
Total	$ 1,050,600	$ 676,200	$ 374,400
Plan 10A: Scenario 2: 22-Foot Gates			
Residential			
Structure	$ 303,700	$ 160,500	$ 143,200
Content	$ 136,600	$ 72,100	$ 64,500
Subtotal	$ 440,300	$ 232,600	$ 207,700
Commercial	$ 403,700	$ 180,900	$ 222,800
Public & Other	$ 206,600	$ 78,900	$ 127,700
Total	$ 1,050,600	$ 492,400	$ 558,200
Plan 10A: Scenario 3: 30-Foot Gates			
Residential			
Structure	$ 303,700	$ 78,100	$ 225,600
Content	$ 136,600	$ 35,000	$ 101,600
Subtotal	$ 440,300	$ 113,100	$ 327,200
Commercial	$ 403,700	$ 96,500	$ 307,200
Public & Other	$ 206,600	$ 42,200	$ 164,400
Total	$ 1,050,600	$ 251,800	$ 798,800

(1) Benefits are computed using January 1988 prices, an 8.625% annual interest rate, and a 100-year project life.

B6. AGRICULTURAL FLOOD DAMAGE REDUCTION

Plan 10A will reduce the flood hazard to agricultural areas downstream of the dam. This will result in agricultural benefits. Agricultural benefits were computed for Scenario 1 (12-foot gates), Scenario 2 (22-foot gates), and Scenario 3 (30-foot gates).

a. Methodology.

Agricultural information has been collected from local agricultural authorities. Local agricultural authorities include: SDS, ASCS, New York State College of Agriculture, Life Sciences at Cornell University, and the New York State Extension Service.

Crop budgets were derived for all crops affected. Crop budgets, along with crop yields, crop prices, and frequency of flooding were used to develop damages per acre by crop. These damages by crop were then used to obtain a weighted damage per composite acre.

This information was used to develop a stage-damage curve by individual reach. The stage damages reflect the secular growth in productivity that will take place during the evaluation period. This was input into a computer program that calculates damages (HEC-EAD). The output is expected annual damages. This process was used to determine "without project" and "with project" damages.

Information on intensified crop yields, crop prices, and intensified crop production costs were used to develop intensification benefits. A more detailed explanation of the agricultural benefit process follows.

b. General Agricultural Characteristics.

(1) Agricultural Land Use - Historical data on agricultural land use was obtained from a variety of sources. Agricultural land use patterns were obtained from 1966 New York State Land Utilization and Natural Resource (LUNR) Maps. The flood plain outline for the 1972 Tropical Storm Agnes was on quad sheets contained in the August 1973 Corps report "Report of Flood, Tropical Storm Agnes, 21-23 June 1972, Genesee River Basin." Mylars of the LUNR maps were placed over these report maps and the extent of the 1972 flood was transposed. All agricultural land in the 1972 flood area was planimetered. All agricultural parcels were visually checked against 1983 aerial photos of the same area. This resulted in agricultural land use in the flood plain area. Field trips to the flood plain indicated the LUNR maps do provide an effective means of identifying and quantifying the agricultural land use of the flood plain. "Total Agricultural Acres" by reach, is presented in Table B6.1. "Total Agricultural Acres" includes "Inactive Acres." "Inactive Acres" were subtracted from "Total Agricultural Acres" to arrive at acres farmed under "Existing Conditions."

Table B6.1 - Existing Condition Agricultural Acres

Reach	Total Agricultural Acres	Inactive Acres	Existing Condition Acres
2 Chili	105	0	105
3 Avon	3,705	14	3,691
4 Geneseo	7,295	31	7,264
Total	11,105	45	11,060

(2) Crop Yields, Flood Free - Table B6.2 presents estimated crop yields for the principal crops grown on the flood plain. These yields are weighted average yields for the entire flood plain, given the yields and the spatial distribution of the principal soils of the flood plain. Flood-free yields are weighted average yields that could be obtained by flood-free farmers with elimination of the flood hazard. Intensified yields are weighted average yields that could be obtained by flood plain farmers with the elimination of the flood hazard and intensified management practices (additional production input). Flood-free yields have been used as the base to calculate agricultural inundation reduction benefits in accordance with Principles and Guidelines. Intensified yields only affect the calculation of future agricultural benefits under "with project" conditions.

(3) Crop Prices - In accordance with current guidance, prices used in this report are normalized prices (without the crop subsidy) provided by the Water Resources Council. The price for corn for silage is not surveyed by the WRC. This price is based upon an average price received by farmers in the study area. All prices are provided in Table B6.3.

(4) Farm Schedules - Monthly flood-free schedules of farm operations were developed for each of the principal crops grown on the flood plain. These schedules present data on variable production costs. A schedule was developed for each of the following crops: corn for grain; corn for silage; mixed hay, oats, winter wheat, soybeans; and miscellaneous crops. These costs were obtained through interviews of flood plain farmers and local agricultural authorities. A sample monthly schedule for corn for grain is presented in Table B6.4.

The monthly schedules of farm operations, show monthly crop loss with consideration given to profit from a catch crop. If a crop is not totally destroyed by a damaging flood, crop loss is a percent decline in yield as specified on the individual crop schedules. For crops totally destroyed by a damaging flood, crop loss is gross revenue minus unexpended variable production cost minus profit from the catch crop. Monthly crop loss values have been weighted by the percent distribution of historical floods recorded at the Alabama, New York, gate on Tonawanda Creek. The resulting monthly damages summed represent potential annual damage for an acre of each crop.

(5) Weighted Annual Damage per Composit Acre - Potential annual damages by crop were used to develop a weighted annual damage factor. Crop weights

reflect current cropping patterns in the lower reach. Crop weights were obtained from local agricultural authorities (ASCS in Livingston County and New York State Co-operative Extension). Table B6.5 summarizes the procedures used to obtain this weighted crop damage per composite acre value. Weighted crop damages per composite acre came to $60.02.

Table B6.2 - Crop Yields or Principal Crops Grown on the Genesee River Flood Plain

Crop	Average Crop Yields Per Acre (Units/Acre) (1) Flood-Free	Intensified
Corn, Grain	100.0 Bu.	215.0 Bu.
Corn, Silage	17.0 Tons	20.0 Tons
Mixed Hay	3.5 Tons	4.0 Tons
Oats	80.0 Bu.	100.0 Bu.
Winter Wheat	45.0 Bu.	55.0 Bu.
Soybeans	30.0 Bu.	35.0 Bu.

(1) Weighted average yields reflect distribution of and crop yields for flood plain agricultural land in Erie, Niagara, and Genesee Counties based on predominate soil types on the flood plain in these counties.

Table B6.3 - Prices of Principal Crops Grown on the Genesee River Flood Plain

Crop	$ Per Unit
Corn, Grain	1.91 per Bushel
Corn, Silage	15.67 per Ton
Mixed Hay	76.61 per Ton
Oats	.96 per Bushel
Winter Wheat	2.11 per Bushel
Soybeans	4.50 per Bushel

SOURCE: "Agricultural Price Standards, U.S. Water Resource Council, 24 July 1987 Reference Handbook", and "Field Crop Enterprise Budgets, 1987 Projections, Cornell University."

Table B6.5 - Weighted Annual Damage per Composite Acre

	Corn Grain	Corn Silage	Mixed Hay	Oats	Winter Wheat	Soybeans	Misc
	$	$	$	$	$	$	$
Annual Damage per Acre	24.33	27.92	107.25	8.10	41.59	8.10	147.79
Crop Dist. by Percent	.5225	.0275	.05	.01	.09	.05	.25
	12.71	0.77	5.36	0.08	3.74	0.41	36.95

Weighted Composite Annual Damage = $60.02

Table B6-4 Crop Budget And Damage Factors For Corn Grain

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
VARIABLE PRODUCTION COSTS													
GROWING COSTS	$0.00	$0.00	$0.00	$20.58	$61.75	$20.58	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$102.92
HARVESTING COSTS	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$22.84	$28.55	$5.71	$57.10
LABOR COSTS	$0.00	$0.00	$0.00	$1.80	$5.39	$1.80	$0.00	$0.00	$0.00	$3.60	$4.50	$0.90	$17.98
MNTHLY EXPENDITURE	$0.00	$0.00	$0.00	$22.38	$67.14	$22.38	$0.00	$0.00	$0.00	$26.44	$33.05	$6.61	$178.00
CUMULATIVE COSTS	$0.00	$0.00	$0.00	$22.38	$89.53	$111.91	$111.91	$111.91	$111.91	$138.34	$171.39	$178.00	
TOT. VAR PROD. COSTS				$178.00	$178.00	$178.00	$178.00	$178.00	$178.00	$178.00	$178.00	$178.00	$178.00
EXPENDED	$0.00	$0.00	$0.00	$22.38	$89.53	$111.91	$111.91	$111.91	$111.91	$138.34	$171.39	$178.00	
UNEXPENDED	$0.00	$0.00	$0.00	$155.62	$88.47	$66.09	$66.09	$66.09	$66.09	$39.66	$6.61	$0.00	
POTENTIAL GROSS REVENUE-				$191.00	$191.00	$191.00	$191.00	$191.00	$191.00	$191.00	$191.00	$191.00	$191.00
PRICE- $	$1.91												
YIELD PER ACRE	100												
CROP LOSS	$0.00	$0.00	$0.00	$35.38	$102.53	$124.91	$124.91	$124.91	$124.91	$151.34	$88.89	$19.10	
CATCH CROP PROFIT (CROP SPECIFIC)	********				($6.10)	($15.25)	($44.30)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
(REPLANTS DECLINE IN YIELD BY MONTH)					0	0	0	0	0	0	0	0	0
IF CATCH CROP PROFIT < 0, NO CATCH CROP IS PLANTED.													
(Apr.1-May.15-Je.30)													
ADJUSTED CROP LOSS	$0.00	$0.00	$0.00	$35.38	$102.53	$124.91	$124.91	$124.91	$124.91	$151.34	$88.89	$19.10	
DAMAGE FACTOR (%)													
(NO. FLOOD EVENTS)	7	18	27	20	3	2	0	1	3	0	4	10	95
(TONAWANDA ONLY)	0.074	0.189	0.284	0.211	0.032	0.021	0.000	0.011	0.032	0.000	0.042	0.105	1.000
DAMAGES	$0.00	$0.00	$0.00	$7.45	$3.24	$2.63	$0.00	$1.31	$3.94	$0.00	$3.74	$2.01	$24.33

c. Existing Agricultural Damages and Benefits.

Agricultural benefits can be classified as "Existing Condition Benefits" and "Future Condition" benefits. The former includes two distinct benefit classes: benefits resulting from the elimination of land loss due to streambank erosion and damages resulting from elimination of inundation damages. "Future Condition" benefits comes from intensification of pasture land.

(1) Elimination of Streambank Erosion Loss - Local agricultural authorities have identified streambank erosion as one of the most serious water resource problems in the Genesee River Basin. Streambank erosion is a highly visible problem.

A streambank erosion computer model for the main stem of the Genesee River was developed by the Buffalo District. This model predicted 22.2 acres would be lost annually.

This estimate includes land lost from the more severe and less frequent events such as Tropical Storm Agnes which occurred in June 1972. The model predicted 7.7 acres would be lost below Mount Morris annually. The remaining acres, 14.5, are lost above Mount Morris.

Plan 10A only affects erosion downstream of Mount Morris. The current market value of an acre of cropland on the affected flood plain was identified as $650. The annual value of land lost below Mount Morris due to streambank erosion is $5,000. It was assumed any scenario at Mount Morris (Scenario 1, Scenario 2, and Scenario 3) would eliminate 40 percent of the streambank erosion taking place below the dam. Streambank erosion benefits equals $2,000.

(2) Existing Agricultural Damages and Benefits - Agricultural inundation damages presented in this report are based on the concept of agricultural loss as previously defined. A weighted annual agricultural loss value per composite acre of sown crop land was calculated ($60.02). The weights were the percentage each crop is of total sown crop land in the basin. A stage area curve for agricultural land, which is defined as areas of sown crop land inundated from zero damage to SPF stage, was developed for the lower basin. These relationships were developed from the analysis of agriculture use patterns on the flood plain and by planimetering affected areas on USGS topographic maps for the 1972 flood, and bank-full stage. The above information was used to develop a stage damage curve by reach. Table B6.6 presents sample stage-damage inputs for Reach 4, for "Existing Conditions".

(a) Projected Growth of Agricultural Inundation Damages. The value of agricultural output on the flood plain has been rising, and it is projected to continue to rise over time. This represents a regional component of a national secular trend of rising agricultural productivity and output in the future. This secular rise is acknowledged by Cornell University School of Agriculture nd by the U.S. Water Resources Council OBERS projections, Regional Economic Activity in the United States.

The "without project" agricultural damages, as well as the "Residual Damages" have been estimated to grow at a rate of 2 percent per year from 1987-1995,

in accordance with Cornell University estimates. Both "without" and "with project" damages were allowed to grow at 2 percent annually for the period 1988 to 1995. This information was used in conjunction with stage area curves to develop stage damage inputs by reach. The HEC-EAD computer program was used to convert these damages to equivalent average annual damages (see Table B6.6).

Table B6.6 - Stage Damage Inputs for Reach 4

REACH	4 GENESEO							
NUMBER OF POINTS	STAGE		ACRES	$ DAMAGES PER ACRE	CROP DAMAGES PER ACRE	OTHER AGRICULT DAMAGES	TOTAL AGRICULT DAMAGES	SECULAR GROWTH FACTOR	SECULAR GROWTH & AGRICULT DAMAGES
1	551.21		0	$60.02	$0.00	$0.00	$0.00	1.1717	$0.00
2	551.21		0	$60.02	$0.00	$0.00	$0.00	1.1717	$0.00
3	551.84		0	$60.02	$0.00	$0.00	$0.00	1.1717	$0.00
4	552.69		0	$60.02	$0.00	$0.00	$0.00	1.1717	$0.00
5	554.62		0	$60.02	$0.00	$0.00	$0.00	1.1717	$0.00
6	557.16		0	$60.02	$0.00	$0.00	$0.00	1.1717	$0.00
7	557.50	*	0	$60.02	$0.00	$0.00	$0.00	1.1717	$0.00
8	558.87		6100	$60.02	$366,122.00	$54,918.30	$421,040.30	1.1717	$493,315.81
9	560.88		6750	$60.02	$405,135.00	$60,770.25	$465,905.25	1.1717	$545,882.26
10	562.37		7050	$60.02	$423,141.00	$63,471.15	$486,612.15	1.1717	$570,143.65
11	563.88		7250	$60.02	$435,145.00	$65,271.75	$500,416.75	1.1717	$586,317.98
12	564.50		7264	$60.02	$435,985.28	$65,397.79	$501,383.07	1.1717	$587,450.18
13	566.00	*	7264	$60.02	$435,985.28	$65,397.79	$501,383.07	1.1717	$587,450.18
14	568.00		7264	$60.02	$435,985.28	$65,397.79	$501,383.07	1.1717	$587,450.18

*-Actual points on the curve.
Other Agricultural Damages-Crop Damages times 15%. This calculation starts 1 foot after bank full. This allows for damages to farm buildings, machinery, farm roads, etc.
Total Agricultural Damages- "Crop Damages" and "Other Agricultural Damages".
Secular Growth- Assumed to be 2% per year. Growth takes place from study year 1988 to the first year of the Project, 1995.

(b) Average Annual Agricultural Damages, Existing Conditions. Approximate agricultural damages for existing conditions by reach were calculated by multiplying the area of affected crop land at each stage, by the weighted annual loss value per composite acre of sown crop land in the Lower Basin. An example of this calculation is presented in Table B6.6 for Reach 4. "Other Agricultural Damages", which include damages to fences, to farm access roads, and to machinery and equipment have been estimated to be 15 percent of crop damage beginning at 1 foot above the zero damage stage. "Other Agricultural Damages" are included in the agricultural stage-damage curves. Table B6.6 also shows how secular growth in productivity was included in the stage-damage curve. The resulting products were inputs into the Expected Average Annual Damage program from the Hydrologic Engineering Center (HEC) to estimate "approximate" damage-frequency relationships for each reach.

Existing average annual damages, by reach, are presented in Table B6.7. These damages come to $302,000. The damages, calculated at January 1988 prices, assume a 100-year project life, and an 8-5/8 percent annual interest rate.

The agricultural damages produced by this process are termed "approximate" because they underestimate agricultural damage. This is because the stage-frequency curves are based on annual peaks. Field inspection indicates that these curves understate frequency of growing season agricultural damage.

(c) Average Annual Agricultural Damages, Improved Conditions. Residual average annual equivalent damages have been computed for each of the three scenarios using improved-condition stage-frequency curves. Table B6.7 presents the residual equivalent average annual agricultural inundation damages for each scenario in January 1988 prices and estimated 1988 agricultural land use. These damages, for Scenario 1, Scenario 2, and Scenario 3, came to $222,800, $181,300, and $117,100. These damages are at January 1988 prices, and assume a 100-year project life, and an 8-5/8 percent annual interest rate.

(d) Average Annual Equivalent Agricultural Benefits, Existing Conditions. Existing equivalent average annual agricultural benefits (agricultural inundation reduction benefits) for the three scenarios are summarized in Table B6.7. Average annual agricultural inundation benefits for Scenario 1 (12-foot gates), Scenario 2 (22-foot gates), and Scenario 3 (30-foot gates) came to $79,200, $120,700, and $184,900.

d. Future Agricultural Land Use and Benefits.

Intensification - Agricultural intensification benefits take into consideration the change in agricultural damages that would result from shifting to a higher land use under "with project" conditions. Shifting of land currently used for pasture to crop production would fall under this category.

(1) Future Land Use - Analysis of cropping patterns in the Lower Basin under existing flooding conditions indicates that land subject to flooding once in 3 years or more frequently, currently is used as pasture. Land which is subject to flooding less frequently is used for high-value field and vegetable crops.

Flood plain farm owners, farm operators, and related regional agricultural authorities (Soil Conservation Service personnel, local conservation district personnel, and New York State Agricultural Extension Service field crop specialists) indicate this land use pattern will be maintained under "with project" conditions.

Future land use patterns have been estimated using the reduction in flood frequency as well as information collected from the above named agricultural authorities. Table B6.8 presents a reach-by-reach illustration of total acres in pasture and acres of pasture shifted to higher use.

It has been projected that 87 percent of flood-free (existing condition) pasture (425 acres) will be shifted to a higher use under "with project" (improved) conditions for any of the three scenarios evaluated. This shift in

Table B6.7 - Existing Agricultural Benefits by Reach

Reach	Existing Damages	Residual Damages	Benefits 1988 Prices
	Scenario 1 - 12-Foot Gates		
	$	$	$
2 Chili	3,000	2,200	800
3 Avon	228,300	187,900	40,400
4 Geneseo	70,700	32,700	38,000
Total	302,000	222,800	79,200
	Scenario 2 - 22-Foot Gates		
	$	$	$
2 Chili	3,000	1,800	1,200
3 Avon	228,300	166,700	61,600
4 Geneseo	70,700	12,800	57,900
Total	302,000	181,300	120,700
	Scenario 3 - 30-Foot Gates		
	$	$	$
2 Chili	3,000	1,000	2,000
3 Avon	228,300	112,100	116,200
4 Geneseo	70,700	4,000	66,700
Total	302,000	117,100	184,900

land use is estimated to occur at a linear rate over the 10-year period, 1995 through 2005. Thus, 42.5 acres would be shifted yearly into a higher use, for the first 10 years of the evaluation period.

Table B6.8 - "With Project" Condition Intensified Acres

Reach	Acres of Existing Pasture	Pasture Areas Shifted
2 Chili	0	0
3 Avon	187	137
4 Geneseo	298	288
Total	485	425

(2) Crop Yields, Intensified - Table B6.9 presents estimated crop yields for the principal intensified crops grown on the flood plain. These crops are corn silage and hay. Intensified yields are weighted average yields that could be obtained by flood plain farmers with the elimination of the flood hazard and intensified management practices (additional production inputs). Intensified yields affect the calculation of future agricultural benefits under "with project" conditions.

Table B6.9 - Crop Yields for Intensified Crops Grown on the Genesee River Flood Plain

Crop	Average Yield per Acre (Units/Acre) Intensified (1)
Corn, Silage	20.0 tons
Mixed Hay	4.0 tons

(1) Weighted average intensified yields reflect, distribution of and crop yields for, flood plain intensified agricultural land in Erie, Niagara, and Genesee Counties, based on predominate soil types on the flood plain in these counties.

(3) Crop Prices - In accordance with current guidance, prices used in this report are normalized prices (without the crop subsidy) provided by the Water Resources Council. The price for corn for silage is not surveys by the WRC. This price is based upon an average price received by farmers in the study area. All prices are provided in Table B6-10. Crop prices do not change even though the crops are intensified. Production costs increase and yields increase.

Table B6.10 - Prices of Intensified Crops Grown on the Genesee River Flood Plain

Crop	1988 Prices
Corn, Silage	$15.67 per ton
Mixed Hay	$76.61 per ton

(4) Farm Schedules (Budgets), Intensified - Based on information from the above named agricultural authorities, land projected to shift upward in use from pasture to high value crops has been projected to be managed more intensively under "with project" (improved) conditions. Additional drainage measures, fertilizer, herbicides, and seed expenditures will result in higher production costs. Table B6.11 presents the calculation of these higher production costs for corn silage. A similar table was developed for mixed hay.

These increased costs were used in conjunction with the rise in output to develop intensified crop budgets. Like the upward shift in land use, the intensified management practices are projected to be implemented over the 10-year period (1995-2005) under "with project" conditions.

Monthly schedules of intensified operation budgets (Table B6.11 for corn silage) presents data on gross revenue, total variable production costs and crop loss for each of the principal crops grown on the flood plain which are subject to intensified management - corn for silage and mixed hay. All other crops have not been intensified.

(5) Weighted Annual Benefit per Composite Acre for Intensified Crops - Benefits attributable to intensified crop land is defined as "Gross Revenue per Acre" minus "Total Variable Production Cost". These two inputs were obtained from the intensified crop budgets. Intensified crop budgets were developed for corn grain, corn silage, winter wheat, and hay. There was no shift into corn grain since this crop already accounts for 52.25 percent of existing cropped land. Winter wheat had negative net profits per acre of -$.38 using unsubsidized crop prices. Based upon conversations with local agricultural crop specialists, all intensified acres were shifted to corn silage and hay. There would be equal acres of both planted.

All acres shifted were previously used as pasture. There is some net profit foregone from using this pasture land for intensified crops. This net profit foregone was given a value of $50.00 per acre. The profit foregone on the pasture land was subtracted from the weighted annual net profit per composite intensified acre. This resulted in an adjusted net profit per composite intensified acre of $112.07 (Table B6.12).

Table B6-11 Crop Budget And Damage Factors For Corn Silage-Intensified

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
VARIABLE PRODUCTION COSTS													
GROWING COSTS	$0.00	$0.00	$0.00	$19.95	$59.85	$19.95	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$99.75
HARVESTING COSTS	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$11.77	$11.77	$0.00	$0.00	$23.53
LABOR COSTS	$0.00	$0.00	$0.00	$2.91	$8.72	$2.91	$0.00	$0.00	$7.26	$7.26	$0.00	$0.00	$29.05
													$0.00
MNTHLY EXPENDITURE	$0.00	$0.00	$0.00	$22.86	$68.57	$22.86	$0.00	$0.00	$19.03	$19.03	$0.00	$0.00	$152.33
CUMULATIVE COSTS	$0.00	$0.00	$0.00	$22.86	$91.42	$114.28	$114.28	$114.28	$133.30	$152.33	$0.00	$0.00	
TOT. VAR PROD. COSTS				152.33	152.33	152.33	152.33	152.33	152.33	152.33	0	0	152.33
EXPENDED	$0.00	$0.00	$0.00	$22.86	$91.42	$114.28	$114.28	$114.28	$133.30	$152.33	$0.00	$0.00	
UNEXPENDED	$0.00	$0.00	$0.00	$129.48	$60.91	$38.06	$38.06	$38.06	$19.03	$0.00	$0.00	$0.00	
GROSS REVENUE-				$313.40	$313.40	$313.40	$313.40	$313.40	$313.40	$313.40	$0.00	$0.00	$313.40
PRICE- $	$15.67	(1)											
YIELD PER ACRE	20												
DRAINAGE COSTS				$4.58	$4.58	$4.58	$4.58	$4.58	$4.58	$4.58			
TOTAL GROSS REVENUE				$308.82	$308.82	$308.82	$308.82	$308.82	$308.82	$308.82	$0.00	$0.00	308.82
CROP LOSS	$0.00	$0.00	$0.00	$179.24	$247.91	$270.77	$270.77	$270.77	$289.79	$308.82	$0.00	$0.00	
CATCH CROP PROFIT (CROP SPECIFIC) (REPLANTS DECLINE IN YIELD BY MONTH)				$125.61	$110.17	$83.84	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	
(Apr.1-May.15-Jn.30)													
ADJUSTED CROP LOSS	$0.00	$0.00	$0.00	$53.74	$137.74	$206.92	$270.77	$270.77	$289.79	$308.82	$0.00	$0.00	
DAMAGE FACTOR (I)													
(NO. FLOOD EVENTS)	7	18	27	20	3	2	0	1	3	0	4	10	95
(TONAWANDA ONLY)	0.074	0.189	0.284	0.211	0.032	0.021	0.000	0.011	0.032	0.000	0.042	0.105	1.000
DAMAGES	$0.00	$0.00	$0.00	$11.31	$4.35	$4.34	$0.00	$2.85	$9.15	$0.00	$0.00	$0.00	$32.02

(1). From Table 2 page 11, "Field Crop Enterprise Budgets", Cornell University Agricultural Experiment Station, Ithaca New York, March 1987.

Table B6.12 - Weighted Annual Benefit per Composite Intensified Acre

Crop	Gross Revenue per Acre	Total Variable Production Cost	Net Profit	Percent of Land by Crop	Weighted Annual Net Profit per Composite Intensified Acre
	$	$	$	(percent)	$
Corn, Silage	308.82	152.33	156.49	50	78.25
Hay	301.86	134.23	167.64	50	83.82
					162.07
Net Profit for Pasture Land					
Weighted Annual Benefit per Composite Intensified Acre					50.00
					112.07

(6) Future Agricultural Benefits, Intensification - Future agricultural benefits attributed to any of the three scenarios (Scenario 1, Scenario 2, and Scenario 3) are increased profits less the increase in income foregone attributed to the shift in land use and intensified farm management. Table B6.13 presents the increase in gross profit and the resulting benefit attributed to the project in the future. The increase in gross profit has been estimated to grow at a rate of 2 percent per year for the period 1995-2005, in accordance with the trend of rising agricultural output and productivity previously documented (see "Projected Growth of Agricultural Inundation Damages"). These benefits, as presented in Table B6.13, are projected to accrue at a linear rate over the 10-year period 1995 to 2005 (project year 1 to project year 10).

These benefits are discounted at the project interest rate of 8.625 percent per annum. The discounted average annual benefits at January 1988 price levels amount to $37,800. Intensification benefits for Reaches 3 and 4 came to $12,200 and $25,600, respectively.

Table B6.13 - Time Stream of Intensification Benefits

Project Year	Acres Shifted	Cumulative Acres Shifted	Weighted Net Profit per Acre	Secular Growth Compound Factor	Total Intensification Benefits per Year	Cumulative Intensification Benefits per Year
	(acres)	(acres)	$		$	$
1	42.5	42.5	112.07	1.02	4,858	4,858
2	42.5	85.0	112.07	1.0404	4,955	9,813
3	42.5	127.5	112.07	1.0612	5,054	14,867
4	42.5	170.0	112.07	1.0824	5,155	20,022
5	42.5	212.5	112.07	1.1041	5,258	25,280
6	42.5	255.0	112.07	1.1262	5,363	30,643
7	42.5	297.5	112.07	1.1487	5,471	36,114
8	42.5	340.0	112.07	1.1717	5,580	41,694
9	42.5	382.5	112.07	1.1951	5,692	47,386
10	42.5	425.0	112.07	1.2190	5,806	53,192
11	0	425.0				53,192
100	0	425.0				53,192

e. Summary of Agricultural Benefits.

Table B6.14 summarizes estimated average annual agricultural benefits by scenario. The three agricultural benefit categories are Erosion Benefits, Inundation Reduction Benefits, and Intensification Benefits. Total agricultural benefits attributable to Scenario 1 (12-foot gates), Scenario 2 (22-foot gates), and Scenario 3 (30-foot gates) came to $119,000, $160,500, and $224,700, respectively. These benefits are in January 1988 prices, assume a 100-year project life, and an 8-5/8 percent annual discount rate.

Table B6.14 - Agricultural Benefits by Scenario

Benefit Categories	Scenario 1 (12-Foot Gates)	Scenario 2 (22-Foot Gates)	Scenario 3 (30-Foot Gates)
	$	$	$
Erosion Benefits	2,000	2,000	2,000
Inundation Benefits	79,200	120,700	184,900
Intensification Benefits	37,800	37,800	37,800
Total	119,000	160,500	224,700

B7. SUMMARY OF BENEFITS

a. Introduction.

Table B7.1 summarizes average annual benefits for the three scenarios evaluated. There are two major benefit categories: Urban Inundation Benefits and Agricultural Benefits. Scenario 3 had average annual benefits of $1,023,500. Scenario 2 had average annual benefits of $718,700. Scenario 1 had average annual benefits of $493,400.

Benefits developed in this section reflect conditions of development over the evaluation period (1995-2005), January 1988 price levels, an 8.625 percent annual interest rate, and a 100-year project life. The components of two major benefit categories follows.

b. Urban Inundation Benefits.

The majority of the benefits derived from the three scenarios are primarily inundation reduction benefits. These benefits accrue to the existing residential, commercial and public, and other activities located in the project area. Residential benefit include affluence applicable to residential contents. Other benefit categories analyzed were Floodproofing Costs Avoided, National Flood Insurance Costs Avoided, and Area Redevelopment Benefits.

(1) Inundation Reduction Benefits - Section B4 evaluated future flood plain land use and concluded no future change in land use is expected. Land use is the same "without" and "with" the project. Each scenario's urban inundation reduction benefit is arrived at by subtracting from average annual urban inundation damages under "without project" conditions (Table B5.1); each scenario's corresponding "with project" residual urban inundation average annual damages (Table B5.2). This is performed in Table B5.3. Annual urban inundation benefits for Scenarios 1, 2, and 3 came to $374,400, $558,200, and $798,800, respectively.

(2) Floodproofing Costs Avoided - There are no floodproofing costs avoided benefits associated with any of the scenarios evaluated.

(3) National Flood Insurance Administration Costs Avoided - The national cost of the flood insurance program is its administration costs. Savings of flood insurance administration costs can be credited to the NED benefit account when a project eliminates inundation of an area due to floods having an exceedence frequency of 1 percent of less. As outlined in Section B5d(2) (National Flood Insurance Costs), none of the scenarios would cause a reduction in administration costs.

(4) Area Redevelopment Benefits - The applicability of area redevelopment benefits was investigated. In labor market areas which have been designated as redevelopment areas, current planning guidance directs that project benefits shall be increased by the value of unemployed or underemployed local labor required to implement the project. Otherwise, it is assumed, such labor would not be used or would be underutilized.

In order to achieve designation as a redevelopment area, a region must meet the established criteria for substantial and persistent unemployment. None of the counties met this criteria. There are no area redevelopment benefits associated with any of the scenarios.

c. Agricultural Benefits.

There are three agricultural benefit categories: Agricultural Erosion Benefits, Agricultural Inundation Reduction Benefits, and Agricultural Intensification Benefits. Total agricultural benefits for Scenarios 1, 2, and 3 came to $119,000, $160,500, and $224,700, respectively.

Table B7.1 - Summary of Benefits by Scenario (1)

Benefit Categories	Scenario 1	Scenario 2	Scenario 3
	$	$	$
Flood Damage Reduction			
Residential			
Structures	94,700	143,200	225,600
Contents	42,700	64,500	101,600
Subtotal	137,400	207,700	327,200
Commercial	149,700	222,800	307,200
Public and Other	87,300	127,700	164,400
Subtotal	374,400	558,200	798,800
Agricultural			
Erosion	2,000	2,000	2,000
Inundation	79,200	120,700	184,900
Intensification	37,800	37,800	37,800
Subtotal	119,000	160,500	224,700
Total Benefits	493,400	718,700	1,023,500

(1) Benefits are computed using January 1988 prices, an 8.625 percent annual interest rate, and a 100-year project life.

(1) Erosion Benefits - Each scenario would eliminate some of the erosion of agricultural land downstream of Mount Morris. Given 7.7 acres of agricultural land are lost to erosion a year, an average value of $650 per acre, and a 40 percent decrease in erosion below Mount Morris from implementation of any of the three scenarios, erosion benefits came to $2,000 annually.

(2) Agricultural Inundation Benefits - Each scenario's agricultural inundation reduction benefit is arrived at by subtracting from average annual agricultural inundation damages under "without project" conditions, each scenario's corresponding "with project" residual agricultural inundation average annual damages. This is performed in Table B6.7.

Stage-damage curves were developed for agriculture. Crop budgets, crop yields, crop prices, and frequency of flooding were used to develop a weighted damage per composite acre. This was used in conjunction with acres affected to develop agricultural stage-damage relationships. The stage-damage curves reflect subsidy-free crop prices and the secular growth in agricultural productivity. This was input into a computer program (HEC-EAD) that was used to develop "without" and "with project" condition agricultural damages.

Agricultural inundation reduction benefits for Scenarios 1, 2, and 3 came to $79,200, $120,700, and $184,900, respectively.

(3) Intensification Benefits - Currently, land subject to flooding once in 3 years, or more frequently, is used as pasture. Under "with project" conditions, a portion of this pasture land (87 percent) will be shifted to a higher use (corn silage and hay). Benefits for such a shift are increased profits less the increase in income foregone attributed to the shift in land use and intensified farm management.

A total of 425 acres were shifted under any of the three scenarios. This shift in land use was assumed to be linear and take place over a 10-year period, starting in 1995.

Table B6.13 outlines the time stream of these benefits. Increased profits per composite acre were developed using intensified crop yields, intensified crop production costs, and net profit foregone from the previous use (pasture). This time stream of agricultural intensification benefits was converted to an average annual value using an 8.625 percent annual interest rate and a 100-year project life. Agricultural intensification benefits for Scenarios 1, 2, and 3 were the same - $37,800.

B8. SUMMARY OF AVERAGE ANNUAL COSTS

° Introduction.

Table B8.1 presents a summary of average annual costs for each of the three scenarios. Annual charges were based on an 8.625 percent annual interest rate and a 100-year project life. Annual maintenance costs applicable to each scenario are also included. Interest during construction was computed based on monthly compoundings.

B9. ECONOMIC EFFICIENCY

° Introduction.

Net discounted benefits and B/C ratio are the two methods of economic efficiency used to determine the economic justification of the project alternatives. Table B9.1 summarizes average annual benefits, average annual costs, net benefits, and benefit-cost ratios for the three scenarios evaluated. None of the scenarios had a B/C ratio above 1. Scenario 1 (12-foot gates) had average annual benefits of $493,400, average annual costs of $942,800, average annual net negative benefits of $449,400, and a B/C ratio of .52. Scenario 2 (22-foot gates) had average annual benefits of $718,800, average annual costs of $1,127,600, average annual net negative benefits of $408,800, and a B/C ratio of .64. Scenario 3 (30-foot gates) had average annual benefits of $1,023,500, average annual costs of $1,226,100, average annual net negative benefits of $242,600, and a B/C ratio of .81.

Table B8.1 - Investment Costs and Annual Charges (January 1988 Price Levels, 8.625 Percent Annual Interest Rate)

Scenario 1 (12-Foot Gates)	
	$
Total Investment for the Project	
Total Project Cost Excluding Lands	10,100,000
Interest During Construction	712,700
Lands and Damages	0
Total Investment Including Lands	10,812,700
Annual Charges for the Project	
Interest	932,600
Amortization	200
Maintenance	10,000
Total Annual Charges	942,800
Scenario 2 (22-Foot Gates)	
	$
Total Investment for the Project	
Total Project Cost Excluding Lands	12,100,000
Interest During Construction	853,800
Lands and Damages	0
Total Investment Including Lands	12,953,800
Annual Charges for the Project	
Interest	1,117,300
Amortization	300
Maintenance	10,000
Total Annual Charges	1,127,600
Scenario 3 (30-Foot Gates)	
	$
Total Investment for the Project	
Total Project Cost Excluding Lands	13,600,000
Interest During Construction	959,770
Lands and Damages	0
Total Investment Including Lands	14,559,700
Annual Charges for the Project	
Interest	1,255,800
Amortization	300
Maintenance	10,000
Total Annual Charges	1,266,100

Table B9.1 - Benefit/Cost Analysis (1)

	Scenario 1 (12-Foot Gates	Scenario 2 (22-Foot Gates)	Scenario 3 (30-Foot Gates)
	$	$	$
Average Annual Benefits	493,400	718,800	1,023,500
Average Annual Costs	942,800	1,127,600	1,266,100
Benefit-Cost Ratio	.52	.64	.81
New Benefits	-449,400	-408,800	-242,600

(1) Benefits and costs are computed using January 1988 prices, an 8.625 percent annual interest rate, and a 100-year project life.

APPENDIX C

DESIGN

GENESEE RIVER STUDY

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C1. GENERAL

This appendix gives the rationale and assumptions used to size and estimate costs of the considered installation of tainter gates on Mount Morris Dam. The proposed structures were sized and estimated using similar Corps of Engineers gated dams as a guide. Costs were estimated for three alternative gate heights of 12, 22, and 32 feet. Height of the gates are measured from the contact point on the spillway to the top of the skinplate.

C2. DESCRIPTION OF CONSIDERED STRUCTURES

Ten steel tainter gates approximately 42 feet long would be installed on the crest of the spillway. The tainter gates and their operating machinery would be installed on concrete piers approximately 8 feet wide. The eleven piers would be constructed on the centerline of each overflow monolith. The piers would also support a service bridge, used to provide access to the tainter gates and their operating machinery for maintenance. Plates C1 and C2 show details of the considered structures. These plates are intended to show only general details of the considered structures and are not to be scaled.

C3. STABILITY OF DAM

A recent report prepared by the Buffalo District presented overturning and sliding stability analyses for the existing dam for various flood and earthquake loading conditions. The report found the dam to be very stable and to meet all the required stability criteria. An overturning stability analysis of the dam with a 32-foot high tainter gate and upper pool to the top of the gate was performed, and the base was found to be in 100 percent compression. The recent stability report found the existing dam to have high safety factors against sliding; therefore, it was assumed that a gated dam would meet all sliding stability requirements.

C4. COST ESTIMATE

Costs were estimated at $10,000,000; $12,100,000; and $14,000,000 for the 12, 22, and 32-foot high gate alternatives, respectively. Cost breakdowns for each alternative are included in this appendix in Tables C1, C2, and C3.

Table C1 - Cost Estimate for 12' High Gate Alternative

PRELIMINARY GOVERNMENT ESTIMATE			JANUARY '88' Price Levels		SHEET 1 OF 1
PROJECT: GENESEE RIVER BASIN STUDY MT. MORRIS DAM TAINTER GATES					INVITATION NO.
ITEM NO.	DESCRIPTION	ESTIMATE QUANTITY	UNIT	UNIT PRICE	ESTIMATED AMOUNT
1	TAINTER GATES 12'high x 42' W/CABLE DRUM HOISTS, EMBEDMENT	10.00	EA.	189,000	1,890.000
2	CONCRETE & REINFORCEMENT				
	a)Concr. Pier, Reinf. & Formwork	6,500	C.Y.	600.00	3,900,000
	b)Extension of Non-overflow Section	1,000	C.Y.	600.00	600,000
	c)Filling Upper Gallery & Portion of 3' ϕ vent	728	C.Y.	310.00	225,680
3	SERVICE BRIDGE				
	a)Precast concr. box beams				
	20 footers	12	EA.	4,000	48,000
	50 footers	60	EA.	9,900	594,000
	b)Concrete Deck	10,000	S.F.	5.25	52,500
	c)Concrete Curbing	1,100	L.F.	9.55	10,505
	d)Steel Guard Railing	1,420	L.F.	46.55	66,101
4	REROUTING EXISTING 3' ϕ VENT IN DAM	2,400	C.F.	18.65	44,760
5	ELECTRICAL - CABLE, CONDUITS		L.S.		61,500
6	MISCELLANEOUS METALS - HANDRAILINGS EMBEDDED METALS		L.S.		26,000
7	DOWELING INTO EXTISTING CONCR. FOR ATTACHMENT TO NEW CONCR.		L.S.		5,200
	TOTAL CONTRACT EARNINGS				7,524,246
	CONTINGENCIES @ 25%				1,875,754
	TOTAL CONTRACTORS EARNINGS PLUS CONTINGENCIES				9,400,000
	ENGINEERING & DESIGN				280,000
	SUPERVISION & ADMINISTRATION				320,000
	TOTAL PROJECT FIRST COST				10,000,000

✓Repp 4/20/88

Table C2 - Cost Estimate for 22' High Gate Alternative

PRELIMINARY GOVERNMENT ESTIMATE			JANUARY '88' Price Levels		SHEET 1 OF 1
PROJECT: GENESEE RIVER BASIN STUDY MT. MORRIS DAM TAINTER GATES					INVITATION NO.
ITEM NO.	DESCRIPTION	ESTIMATE QUANTITY	UNIT	UNIT PRICE	ESTIMATED AMOUNT
1	TAINTER GATES 22' high x 42' W/CABLE DRUM HOISTS, EMBEDMENT	10.00	EA.	346,000	3,460,000
2	CONCRETE & REINFORCEMENT				
	a) Concr. Pier, Reinf. & Formwork	6,500	C.Y.	600.00	3,900,000
	b) Extension of Non-overflow Section	1,000	C.Y.	600.00	600,000
	c) Filling Upper Gallery & Portion of 3' ∅ vent	728	C.Y.	310.00	225,680
3	SERVICE BRIDGE				
	a) Precast concr. box beams				
	20 footers	12	EA.	4,000	48,000
	50 footers	60	EA.	9,900	594,000
	b) Concrete Deck	10,000	S.F.	5.25	52,500
	c) Concrete Curbing	1,100	L.F.	9.55	10,505
	d) Steel Guard Railing	1,420	L.F.	46.55	66,101
4	REROUTING EXISTING 3' ∅ VENT IN DAM	2,400	C.F.	18.65	44,760
5	ELECTRICAL - CABLE, CONDUITS		L.S.		61,500
6	MISCELLANEOUS METALS - HANDRAILINGS EMBEDDED METALS		L.S.		26,000
7	DOWELING INTO EXTISTING CONCR. FOR ATTACHMENT TO NEW CONCR.		L.S.		5,200
	TOTAL CONTRACT EARNINGS				9,094,246
	CONTINGENCIES @ 25%				2,305,754
	TOTAL CONTRACTORS EARNINGS PLUS CONTINGENCIES				11,400,000
	ENGINEERING & DESIGN				330,000
	SUPERVISION & ADMINISTRATION				370,000
	TOTAL PROJECT FIRST COST				12,100,000

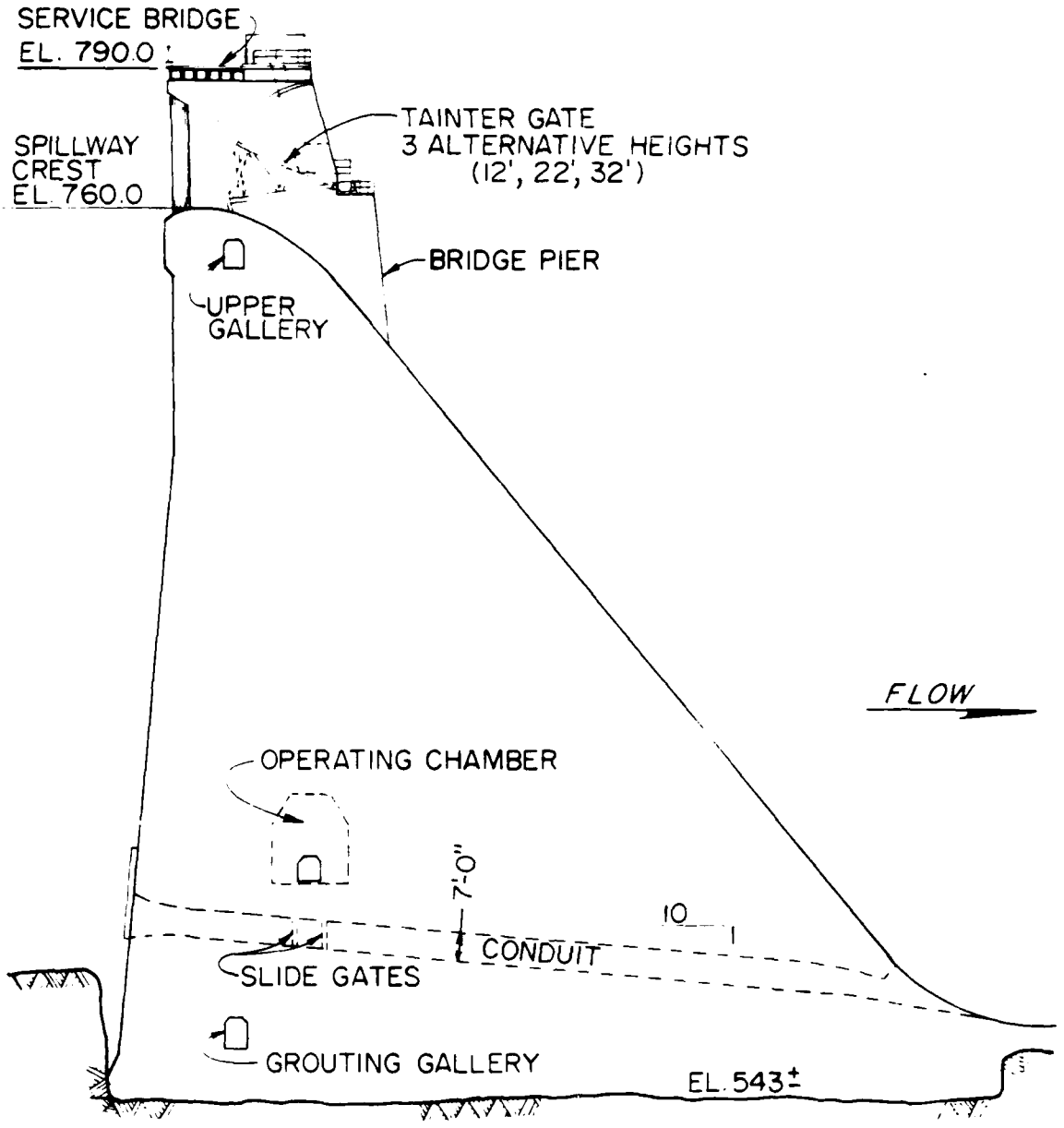
✓ Repp 4/22/88

Table C3 - Cost Estimate for 32' High Gate Alternative

PRELIMINARY GOVERNMENT ESTIMATE	JANUARY '88' Price Levels	SHEET 1 OF 1
PROJECT: GENESEE RIVER BASIN STUDY MT. MORRIS DAM TAINTER GATES		INVITATION NO.

ITEM NO.	DESCRIPTION	ESTIMATE QUANTITY	UNIT	UNIT PRICE	ESTIMATED AMOUNT
1	TAINTER GATES 32'high x 42' W/CABLE DRUM HOISTS, EMBEDMENT	10.00	EA.	504,000	5,040,000
2	CONCRETE & REINFORCEMENT				
	a)Concr. Pier, Reinf. & Formwork	6,960	C.Y.	600.00	4,176,000
	b)Extension of Non-overflow Section	1,000	C.Y.	600.00	600,000
	c)Filling Upper Gallery & Portion of 3' ∅ vent	728	C.Y.	310.00	225,680
3	SERVICE BRIDGE				
	a)Precast concr. box beams				
	20 footers	12	EA.	4,000	48,000
	50 footers	60	EA.	9,900	594,000
	b)Concrete Deck	10,000	S.F.	5.25	52,500
	c)Concrete Curbing	1,100	L.F.	9.55	10,505
	d)Steel Guard Railing	1,420	L.F.	46.55	66,101
4	REROUTING EXISTING 3' ∅ VENT IN DAM	2,400	C.F.	18.65	44,760
5	ELECTRICAL - CABLE, CONDUITS		L.S.		61,500
6	MISCELLANEOUS METALS - HANDRAILINGS EMBEDDED METALS		L.S.		26,000
7	DOWELING INTO EXTISTING CONCR. FOR ATTACHMENT TO NEW CONCR.		L.S.		5,200
	TOTAL CONTRACT EARNINGS				10,950,246
	CONTINGENCIES @ 20%				2,249,754
	TOTAL CONTRACTORS EARNINGS PLUS CONTINGENCIES				13,200,000
	ENGINEERING & DESIGN				380,000
	SUPERVISION & ADMINISTRATION				420,000
	TOTAL PROJECT FIRST COST				14,000,000

✓Repp 4/24/88



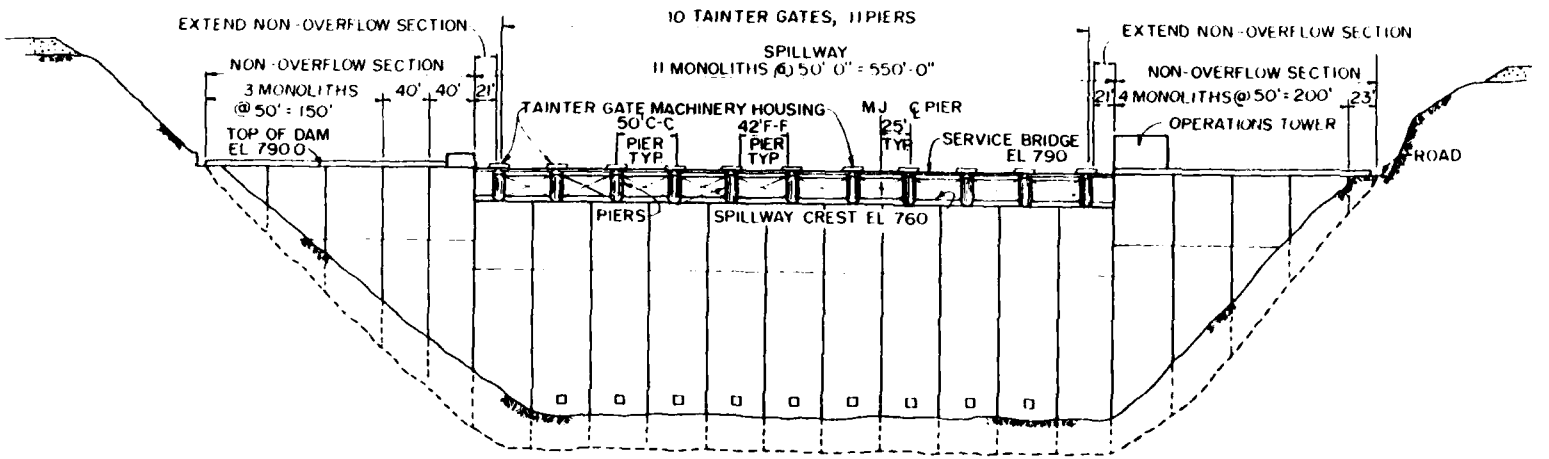
SOUTH ELEVATION
(NOT TO SCALE)

GENESEE RIVER BASIN STUDY
NEW YORK

MODIFICATION TO MT. MORRIS
DAM ALTERNATIVE

U.S. ARMY ENGINEER DISTRICT, BUFFALO
JUNE 1988

PLATE C2



UPSTREAM ELEVATION

SCALE 1" = 100'

100' 0 100' 200'

GENESEE RIVER BASIN STUDY
NEW YORK

MODIFICATION TO MT MORRIS DAM ALTERNATIVE

U S ARMY ENGINEER DISTRICT, BUFFALO
JUNE 1988

PLATE C1

APPENDIX D

ENVIRONMENTAL COORDINATION

SUMMARY OF
ENVIRONMENTAL COORDINATION

This section briefly summarizes environmental coordination to date on the Genesee River Basin Study with the U.S. Fish and Wildlife Service (USF&WS), New York State Department of Environmental Conservation (NYSDEC), and New York State and Pennsylvania Historic Preservation Offices. However, since No Action is being recommended for this basin study, coordination and compliance with environmental statutes, regulations, and Presidential directives was not pursued further. A No Action recommendation implies that no Federal project would be constructed. Therefore, an environmental impact statement, Section 404(b)(1) Evaluation and U.S. Fish and Wildlife Coordination Act Report was not required for inclusion in this Corps feasibility report. Coordination accomplished to date with the aforementioned agencies follows:

U.S. Fish and Wildlife Service - In order to initiate fulfillment of requirements for Section 7 of the Endangered Species Act of 1973, as amended, coordination letters in this regard were sent to the USF&WS Ecological Services offices in both Cortland, New York, and State College, Pennsylvania. Letters dated 15 April 1985 to the Cortland office and 17 April 1985 to the State College office requested identification of any known threatened and endangered species or critical habitats within the Genesee River Watershed in New York State and Pennsylvania. A letter to the Corps of Engineers, Buffalo District Office, dated 24 April 1985 from the USF&WS field supervisor at the State College office, indicated that the information requested was passed on to the USF&WS office in Cortland. The USF&WS response letter from the Cortland field office, dated 30 April 1985, informed the Corps of Engineers that the bald eagle was nesting and winter-feeding in the general area of Hemlock and Canadice Lakes - which is considered to be critical habitat for this species. The letter also stated that the study area is in the historic range of the Indiana Bat (an endangered species). Excluding the above mentioned species, except for occasional transient individuals, no other Federally listed or proposed threatened and endangered species under their jurisdiction are known to exist in the study area.

A planning aid letter dated 25 June 1986 (herein enclosed) from the USF&WS Cortland office provided a preliminary evaluation of the Genesee River Basin Study on a number of alternatives that were being considered. The planning aid letter also provided a recommendation for future studies in the vicinity of potential project impact sites that were suggested as necessary to more fully evaluate potential effects. Studies recommended included: a Habitat Evaluation Procedure (HEP) analysis in the Stannards, New York area, a comprehensive fish, wildlife, and botanical species inventory up to the maximum pool elevation, and a study of deer movement patterns within and immediately adjacent to the proposed project areas at Stannards as well as at Mount Morris, New York.

A three season biological field study of existing fisheries, wildlife, benthos, wetlands, and vegetation on the Genesee River at the Stannards and Mount Morris sites was initiated with the USF&WS Cortland office in 1987. The studies were concentrated in the Stannards area (up to approximately the Pennsylvania State line) south of Wellsville, New York and in the Mount Morris area from about Route 36 upstream to the vicinity of St. Helena in Letchworth State Park. Summer season field studies were accomplished at Stannards and at Mount Morris during the week of 20 July 1987, and fall season studies were done during the week of 19 October 1987. Since the proposed flood control dam at the considered Stannard site was eliminated from further consideration early in the feasibility

study phase, spring season biological sampling studies were not conducted at this site. However, spring season biological studies were completed during the week of 25 April 1988 in the vicinity of Mount Morris, New York. A detailed draft biological survey report was prepared in May 1988 by the U.S. Fish and Wildlife Service on results of the aforementioned field studies, and is on file at the Buffalo District Corps office.

New York State Department of Environmental Conservation - Initial coordination by the Corps of Engineers with the NYSDEC was established by letter dated 30 November 1984 from Colonel Robert R. Hardiman, the Buffalo District Commander at that time, to then Commissioner Williams, advising their Department of the Genesee River Basin Study. A letter of acknowledgment dated 31 January 1985 relative to the aforementioned correspondence was received from Mr. Eric A. Seiffer, Region 8 Director of the NYSDEC Regional office in Avon, New York. Additional Corps letters of coordination requesting baseline data on fish and wildlife resources were sent to the following NYSDEC offices on the dates indicated: Region 8 Headquarters in Avon (16 April 1985), Region 9 office in Olean (12 April 1985), and the Significant Habitat Unit Office in Delmar (15 April 1985). On 9 September 1985, Mr. Jack Cooper (biologist at the NYSDEC Region 8 Avon Office) transmitted some baseline environmental information to the Buffalo District Corps office that provided background data on wetlands, significant habitats, and fisheries in Livingston and Monroe Counties - principally in Genesee River Basin areas downstream of Mount Morris Dam.

Coordination with NYSDEC offices was also made by telephone to obtain environmental information in the Genesee River Basin. On 29 August 1985, the NYSDEC Region 8 office was contacted to obtain air quality information. Additionally, personnel communication on 5 June 1986 with biologists at both the NYSDEC Region 8 and Region 9 offices provided further background data on fisheries in several tributary streams to the Genesee River.

New York State and Pennsylvania Cultural/Historic Preservation Offices - The New York State Historic Preservation Office and the Pennsylvania Historical and Museum Commission were informed of the Genesee River Basin Study, and related plans under consideration, by Buffalo District letter dated 26 April 1985.

The New York State Historic Preservation Office, in a letter dated 2 July 1985, listed significant numbers of properties which are listed either in the National Register of Historic Places or the New York State Historic Inventory. The same letter also stated that "...it is the opinion of the SHPO that your project lies in an area that is archeologically sensitive." An archeological survey of the impacted project areas was recommended to determine the nature and extent of archeological resources in the project area.

The Pennsylvania Historical and Museum Commission, in a letter dated 13 June 1985, stated that "...there is a high probability that historic and/or archaeological resources exist in the project areas. We would advise that project planners conduct investigations or surveys to identify any possible resources before final plans are formulated."

Because of the above recommendations and the lack of comprehensive prior cultural resources studies in the project area, a cultural resources survey was planned to be contracted for any selected proposed project sites. However, since No-Action was recommended for the Genesee River Basin Study, no cultural resources field or contract work was either awarded or performed.

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
Suite 322
315 South Allen Street
State College, Pennsylvania 16801

April 24, 1985

Colonel Robert R. Hardiman
District Commander, Buffalo District
U.S. Army Corps of Engineers
1776 Niagara Street
Buffalo, NY 14207

Dear Colonel Hardiman:

This responds to your April 17 letter requesting identification of any known threatened or endangered species or critical habitats within the Genesee River Watershed in Pennsylvania.

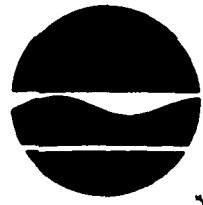
Since only a small portion of the Genesee is in Pennsylvania, we have provided information to the Cortland office regarding threatened and endangered species. You will be hearing from them soon.

We appreciate your interest in protecting threatened or endangered species.

Sincerely,

Charles J. Kulp
Field Supervisor

New York State Department of Environmental Conservation
6274 East Avon-Lima Road, Avon, New York 14414
Telephone: (716) 226-2466



Henry G. Williams
Commissioner

Eric A. Seiffer
Regional Director

January 31, 1985

Robert R. Hardiman, Colonel
Department of the Army
Buffalo District, Corps of Engineers
1776 Niagara Street
Buffalo, NY 14207

Attention: Timothy E. Byrnes, P.E.

Dear Colonel Hardiman:

RE: Genesee River Basin Study - New York

Thank you for your letter of November 30, 1984 to Commissioner Williams advising us of the subject study.

We will be pleased to assist Mr. Byrnes in the reconnaissance phase within the limits of our staffing capabilities. I have asked Albert Butkas at this office to serve as our primary liaison with your office on a semi-formal basis. Of course, formal position statements of the Department will be in writing to you from Commissioner Williams or his designee.

We look forward to working with Mr. Byrnes on the Genesee basin project.

Sincerely,

Eric A. Seiffer

Eric A. Seiffer

PFS:lm

cc: Commissioner Williams
Dan Barolo/Ed Karath
Bill Romer
Edward Holmes
Paul Schmied/Bruce Butler
Al Butkas

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
100 Grange Place
Room 202
Cortland, New York 13045

April 30, 1985

Colonel Robert R. Hardiman
District Engineer, Buffalo District
U. S. Army Corps of Engineers
1776 Niagara Street
Buffalo, New York 14207

Attention: Leonard Bryniarski

Dear Colonel Hardiman:

This responds to your April 15, 1985, letter to our office and your April 17 letter to the State College Field Office requesting identification of any known threatened or endangered species or critical habitats within the Genesee River Watershed in New York and Pennsylvania.

Information provided by the New York State Department of Environmental Conservation indicates that the bald eagle, an endangered species, is nesting and winter feeding in the Hemlock and Canadice Lakes area. The state lists this area as critical habitat for the bald eagle.

Your study area is located within the historic range of the Indiana bat, an endangered species. The distribution of this species is strongly correlated with the major rivers within its range and it has been postulated that the major rivers are migration routes. If your project will impact any caves or tunnels likely to maintain temperatures above freezing throughout the winter, the Service and the New York State Department of Environmental Conservation or the Pennsylvania Game Commission should be notified. A specific investigation may be required to determine if Indiana bats would utilize the caves. At this time we are not aware of any such wintering caves in the study area.

Excluding the above-noted species (the bald eagle and Indiana bat), except for occasional transient individuals, no other federally listed or proposed endangered or threatened species under our jurisdiction are known to exist in the study area. Therefore, no Biological Assessment or further Section 7 consultation is required with the Fish and Wildlife Service (FWS). Should project plans change, or if additional information on listed or proposed species becomes available, this determination may be reconsidered. A list of federally listed endangered and threatened species in New York is enclosed for your information.

This response relates only to endangered species under our jurisdiction. It does not address other FWS concerns under the Fish and Wildlife Coordination Act or other legislation.

Thank you for your interest in endangered species. Please contact us if we can be of further assistance.

Sincerely yours,

Paul P. Hamilton

Paul P. Hamilton
Field Supervisor

Enclosure

cc: Peter Nye, Endangered Species Unit, NYSDEC, Delmar, NY

COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION
BUREAU FOR HISTORIC PRESERVATION
BOX 1026
HARRISBURG, PENNSYLVANIA 17108-1026

June 13, 1985

Robert R. Hardiman
Colonel, Corps of Engineers
District Commander
Department of the Army
Buffalo District
1776 Niagara Street
Buffalo, New York, 14207

Re: ER #85-0409-042-A
Subject: Genesee River Basin (Authorization Report), NY & PA, Study

Dear Mr. Hardiman:

The above named project has been reviewed by the Bureau for Historic Preservation in accordance with Section 106 of the National Historic Preservation Act of 1966, Executive Order 11593 and the regulations of the Advisory Council on Historic Preservation (36 CFR 800).

Because this planning study indicates that a large area is under consideration and a much smaller area will ultimately be affected, it is impractical to consider project impact on historic and archaeological resources at this time. When planning specific alternative project locations, provisions should be made for the identification of historic properties listed in or eligible for the National Register of Historic Places and for the assessment of the effects of the project will have on these resources. If you need any advice or assistance in conducting these kinds of investigations, please contact the Division of Planning and Protection, Bureau for Historic Preservation.

A preliminary review of this project indicates that there is a high probability that historic/and or archaeological resources exist in the project areas. We would advise that project planners conduct investigations or surveys to identify any possible resources before final plans are formulated. For assistance in conducting and organizing a survey, please contact the Division of Planning and Protection.

If you need further information in this matter, please consult Kurt Carr or Dr. Paul Raber of the Bureau for Historic Preservation at (717) 783-8947.

Sincerely,

Dan G. Deibler, Acting Chief
Division of Planning & Protection
Bureau for Historic Preservation
(717) 783-8946

NEW YORK STATE PARKS, RECREATION AND HISTORIC PRESERVATION
Orin Lehman
Commissioner

New York State Office of Parks, Recreation and Historic Preservation
The Governor Nelson A. Rockefeller Empire State Plaza
Agency Building 1 Albany, New York 12238

518-474-0456

July 2, 1985

Mr. Tod Smith
U.S. Army Engineer District
1776 Niagara Street
Buffalo, NY 14207

Dear Mr. Smith:

Re: Genesee River Basin Study
Multi-County; Cattaraugus Creek
Watershed-multi-county;
Buffalo River Section 205
West Seneca

The Field Services Bureau of the New York State Office of Parks, Recreation and Historic Preservation has received your request for information on properties or sites which are included in or may be eligible for inclusion in the National and State Registers of Historic Places.

Based upon the information which you provided and a file search conducted by our staff, we have been able to determine that the following numbers of resources are located in or in the vicinity of the project area which you identified. Individual listings are too numerous to mention here. If more specific information is required, you are welcome to use our files.

I. National/State Register of Historic Places listed or eligible properties:

A - Genesee River Basin Study: Allegany County, 8 listings; Genesee County - 10 listings; Livingston County - 15 listings; Monroe County - 54 listings; Ontario County - 23 listings; Wyoming County - 5 listings.

B - Cattaraugus Creek Watershed: Allegany County and Wyoming County, same as above.
Cattaraugus County - 3 listings; Chautauqua County - 27 listings

C - Buffalo River Section 205 Flood Control - Casimir Avenue - Eaton Site; 2985 Seneca Street

II. Properties included in Statewide Inventory

A. - Genesee River Basin Study: Allegany County - approximately 450 properties in various towns; Genesee County - ...408 properties...;

Livingston County - ...760 properties...; Monroe County - ...2174 properties...; Ontario County - ...776 properties...; Wyoming County - ...468 properties...;

B - Cattaruagus Creek Watershed: Allegany and Wyoming Counties same as above. Cattaraugus County - approximately 260 properties in various towns; Chautauqua County - ...1014 properties....

In addition, with regard to archeology, it is the opinion of the SHPO that your project lies in an area that is archeologically sensitive. This determination is based upon the SHPO's archeological sensitivity model. Archeologically sensitive areas are determined by proximity to known archeological sites, as well as the area's likelihood of producing other archeological materials.

Based upon the use of the model, it is the SHPO's recommendation that unless substantial ground disturbance can be documented, an archeological survey be undertaken to determine the nature and extent of archeological resources in your project area. If you wish to submit evidence regarding ground disturbance, it should include statements concerning the nature and date of the disturbances as well as a map indicating the locations and depths of such activities. Photographs of recent construction activities keyed to a map are very useful in this regard. Once we have had an opportunity to review the additional information provided as a result of the archeological survey, or the evidence regarding prior disturbance, we will be able to complete our review of this project and issue our final comments. This statement applies to all three referenced projects.

Sincerely,

Julia S. Stokes
Deputy Commissioner for
Historic Preservation

bb

APPENDIX E

CORRESPONDENCE

STANNARD

PRO & CON

September 15, 1987

Army Corps of Engineers
Genesee River Basin Study
1776 Niagara St.
Buffalo, NY 14207

Re: Proposed Stannards Dam Project

While I'm sure that if my home or business were in the area to be affected by the project, I would be as concerned and upset as those who own property in the area are, I also cannot help but see this project as having a very high probability of being extremely beneficial to Allegany County, and more specifically Wellsville, from an economic standpoint. Everyone talks about encouraging the tourism business based on currently existing resources, but that simply isn't happening.

Assuming property owners in the area affected by the proposed project are adequately compensated for loss of property, loss of income and inconvenience associated with relocation and are assisted in relocating within the county in equivalent areas, I feel that the long term economic benefit to the area as a whole would outweigh the short term problems the project would create.

Best regards,

Susan Ideker
63 Herman
Wellsville, NY 14895
(716) 593-5893

cc: Hasper Lundine Houghton
Present Cuomo
D'Amato Moynihan

ck

CUMMINGS, EMBSER & WOLTAG
ATTORNEYS AT LAW
DENNISON BUILDING
100 NORTH MAIN STREET
WELLSVILLE, NEW YORK
14895-1289

J. TIMOTHY EMBSER
MARC I. WOLTAG
G. WILLIAM GUNNER, III

TELEPHONE
716 593-1290

October 6, 1987

Army Corps of Engineers
Genesee River Basin Study
1776 Niagara Street
Buffalo, New York 14207

Att: Mr. Weiner Cadet

RE: STANNARDS LAKE

Dear Mr. Cadet:

I am writing to voice my approval of the Army Corps' proposal to build a lake south of Stannards. This letter will act as a supplement to my comments at the public hearing on the matter held at Mount Morris on September 10, 1987.

Primarily I would like to comment on the regional economic impact of the recreational aspects of the lake. I believe that the corallary benefits of flood control and erosion protection are already well documented in the Corps' preliminary study.

Several months ago this project was brought to my attention and my immediate response was that it would be great for the local economy. Virtually everyone with whom I have spoken agrees with this assessment, although many have suggestions regarding the management of the lake to maximize the potential of various recreational uses. Of those I have spoken to who are undecided about favoring the lake, the most frequent reason cited is the lack of a clear quantification of the regional economic impact. Of those opposed, various reasons are given but the common denominator of the opposition seems to be a fear that fair compensation will not be offered for condemned properties. As one landowner, Mr. Fanton, stated in a recent newspaper article, "I'll get the assessed value of my land and that's not enough to buy one tractor."

I have given much thought to the issue of regional economic impact in an effort to substantiate my gut feeling that "It would be good for the area." However, since I am in no way an economist, I have been unable to compute just what the impact might be. While I suspect seasonal residents and visitors would spend money on gas, food and other supplies, I cannot translate this into a dollar figure. For this reason, I think it is important that the Corps include in their study a detailed analysis of the regional economic impact of a lake in Stannards.

While I have been unable to quantify precisely the regional economic impact, I am not without a reasonable guess. I have obtained a study of the regional economic impact of the Great Sacandaga Lake which was prepared by Peat Marwick in Washington, D.C. (copy enclosed). This study highlighted for me the similarities between Sacandaga Lake and the proposed Stannards lake. Sacandaga was created in 1925-29 for purposes of water regulation in the Hudson River following devestating floods in 1902, 1913 and 1922. It has since attracted numerous seasonal residents and visitors as a recreational facility.

I believe the actual regional economic results of Sacandaga can be taken as something of a litmus test for the potential regional economic impact of a lake in Stannards, as follows (comparisons based on relative number of miles of shoreline where appropriate):

1. regional permanent population growth exceeding state average by a factor of 4

2. increased variety of businesses, particularly seasonal

3. market value of seasonal property (eventually) of $38 million (thus expanding town, county and school tax bases)

4. annual maintenance expense on seasonal property of $190,000

5. expenditures per person per day ranging from $7.40-32.25 resulting in annual influx in recreation dollars of $5.5 million annually (plus multiplier effect)

I believe these impacts would have a tremendously positive effect on the economy of the Willing-Wellsville area particularly and on Allegany County in general. I believe that unemployment would be reduced drastically (helping to break the welfare cycle), that the tax base would be greatly expanded (thereby improving education and services) and that the area would be much more attractive as a location for new industry and commerce.

I have not exhausted my efforts to more specifically assess the economic value of a lake in Stannards to the regional economy, nor am I a lone voice in the wilderness. I am sending this letter now to comply with the 30-day comment period for the Mount Morris public hearing. In the weeks and months ahead I hope to urge proponents of the lake to become organized and to speak out. At this time I believe there has been a small but well organized and very vocal opposition to a lake in Stannards and a large but

unorganized and mute group of supporters. As evidence that this project has its proponents I am enclosing a preliminary list of signatures of supporters.

Very truly yours,

Bill Gunner

G. WILLIAM GUNNER, III

GWG/ap
Enclosure

MAILROOM-NCBIH-S 16/10/87

Army Corps of Engineers 16 Oct 87 1100
1776 Niagara St.
Buffalo, N.Y. 14207
Attn: Wiener Corbet

To Whom It May Concern:

We wish to have our views and opinions considered in regards to the proposed Stummit Dam Project.

We are of the understanding, that along with flood control, the project would provide year round recreational opportunities. The resulting economic impact on the area would be dramatic and is certainly needed.

Because of the recreational aspects and the economic input, we are very much in favor of the project and would like to cooperate in any way possible.

We read with interest the views of some who are organized in opposition to the project and feel that our opinions in favor are unique for the following reasons:

1) Despite living along the river north of where the dam would be located, we are in favor of the project.

2) We own almost 300 acres of land which would be directly effected by the project. Some of this land would be given up & the

mostly wooded hillsides, as our land is on the East
by the Genesee River for about ¾ mile South of where the
proposed dam would be located. Despite this, we are
in favor of the project.

We are interested in participating in, or contributing to, the
feasibility study in any way possible.

We are interested in learning more about the project, in particular,
the recreational aspects of it.

Thank you.

Sincerely,

Mr. & Mrs. William H. Chilt
RD 1 Riverview Hts.
Wellsville, N.Y.
14895

PETITION FOR APPROVAL OF STANNARDS DAM PROJECT

We, the undersigned residence of Allegany County hereby articulate our approval of the US Army Corps of Engineers' proposal for the construction of a dam in Stannards, New York provided that the completed project will be managed as a recreational facility, including no draw-down of the high water level during the summer months, Memorial Day through Labor Day and fish management.

Timothy Emerson	Wellsville, N.Y
[illegible]	Wellsville N.Y
C. Charles Johnson	Wellsville N.Y.
Gary P. P. [illegible]	Wellsville, N.Y.
Jerry Sherman	Wellsville N.Y
Robert Piccirilli	Wellsville, N.Y
Barbara Piccirilli	Wellsville N.Y.
Pat. Childs	Stannards N.Y.
Dorothy Tarantino	Wellsville, N.Y
Jane V. McEnroe	Wellsville, N.Y.
DERRY MARTIN	WELLSVILLE, N.Y.
Nick Tarantino	[illegible] N.Y
[illegible]	Wellsville
Rod Fuhrman	Wellsville
Chuck Costello	Wellsville
[illegible]	Wellsville

PETITION FOR APPROVAL OF STANNARDS DAM PROJECT

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Joseph K Wonderling	449 N. Highland Wlsv.
Marla L. Burr	139 Stevens St. Wlsv
Beverly Kruger	97 School St. Wlsv
William C Burton	Belmont N.Y.
Terry L. Smith	689 TRAPPING BROOK RD. WELLSVILLE NY.
Steven D Moon	Williams Ave Wlsv
Kevin Bush	Brenda Slade, Belmont
Shane Bays	23 Hill St.
Linda M Miller	BOLIVAR RD
John Wilson	55 N. Main St. Wellsville
Pat Jester	74 Early St WELLSVILLE NY
Mark T. Mashino	Yeager Hill Rd
Joe Baker	123 EARLY ST
Daniel J. Hoppe	138 West State St
Sandy Burdick	1001 Main Street Scio

WELLSVILLE

PETITION FOR APPROVAL OF STANNARDS DAM PROJECT

We, the undersigned residence of Allegany County hereby articulate our approval of the US Army Corps of Engineers' proposal for the construction of a dam in Stannards, New York provided that the completed project will be managed as a recreational facility, including no draw-down of the high water level during the summer months, Memorial Day through Labor Day and fish management.

Patrick J. Regan	R.D#1 Box 68 Wellsville, N.Y.
[illegible]	55 PLEASANT WELLSVILLE
Theresa Greenman	44 Dyke St. Andover N.Y.
Marilyn Wycklam	300 Bremen St. Rochester, NY
Scott Rowley	Elm Valley Rd. Andover N.Y. 14806
Charles P. Scott	314 E. Dyke St., Wellsville, NY
Timothy J. McLee	49 School St. Wellsville NY.
Susan Mallery	White Hill Rd. Bolivar, NY
David Bolander	25 Orchard St - Wellsville (928-2144)
Robyn S. Smith Age 30	110 Wellsville St. Bolivar, NY.
Wm Pisatelli	RD#1 Wellsville NY.
Richard Dias	165 Madison St. Wellsville
Mary E. Tyler	11 "
[illegible]	165 Madison St. Wellsville
Roberta Sprague	171 E. Dyke St. Wellsville N.Y.
Michael Rubel	104 Whitesville

PETITION FOR APPROVAL OF STANNARDS DAM PROJECT

We, the undersigned residents of Allegany County hereby articulate our approval of the US Army Corps of Engineers' proposal for the construction of a dam in Stannards, New York provided that the completed project will be managed as a recreational facility, including no draw-down of the high water level during the summer months, Memorial Day through Labor Day, and fish management.

Cello Barbaga	220 E. Pearl WLSV 593 4057
[illegible]	RD 1 Box 75 WLSV 593-65[illegible]
Eva Benedict	RD#1 Box 75 Wellsville N.Y.
Bill Sweet	RD#4 Box 64A Wellsville, NY
Robert G. Gabler	R. D. #3, Wellsville
Kathie Ramsey	3214 Riverside Dr. WLSV
TRISHA CASCHERA	RIVERSIDE DR. WLSV.
Steve J CASCHERA	" " "
Greg Goetley	Pearl St. Wellsville N.Y.
Bob Jimmy	102 Wms AVE Wellsville NY
Ayanne Tood	17 Central. Wellsville
Keon Caschera	" " " " "
Mary Louise [illegible]	[illegible]
Phillip O. Shant	PO Box 231 Wellsville NY
Christopher D Anderson	102 EARLY ST. WLSV, N.Y.
Martha Taylor	RR 1 Box 48 Scio, N.Y.

Do we need any more water?

PETITION FOR APPROVAL OF STANNARDS DAM PROJECT

We, the undersigned residence of Allegany County hereby articulate our approval of the US Army Corps of Engineers' proposal for the construction of a dam in Stannards, New York provided that the completed project will be managed as a recreational facility, including no draw-down of the high water level during the summer months, Memorial Day through Labor Day and fish management.

D. William Runner III	Wellsville NY
	RD#3 Worcester, N.Y.
	WELLSVILLE, N.Y.
Tony Brown	Wellsville N.Y.
	WELLSVILLE N.Y.
	WELLSVILLE
Mrs. Jack Donovan	Wellsville
	"
Brian P. Padden	Richardson, Texas & Hunt Hill Hilton
DANIEL A. McLAUGHLIN	ALLEGANY County OFFICE of Economic DEVELOPMENT
BUZZ ERICSON	WELLS
W. H. Clark	Stannards-Willing
Tom Harris	
Robert McCarthy	Wellsville, N.Y. 14895

PETITION FOR APPROVAL OF STANNARDS DAM PROJECT

We, the undersigned residence of Allegany County hereby articulate our approval of the US Army Corps of Engineers' proposal for the construction of a dam in Stannards, New York provided that the completed project will be managed as a recreational facility, including no draw-down of the high water level during the summer months, Memorial Day through Labor Day and fish management.

David J. Lorek	138 W. State, Wellsville, NY
Gordon Bundet	52 Dyke St. Wellsville, N.Y
Bill Gordon	73 Hills St. Wellsville
Ralph Coates	46 78 Pine St Scio, N.Y.
Paul Cozzi	E. Sixth St, Scio N.Y. 14880
Ron Smith	Main St Belmont Ny.
Dan Quinn	309 West State Wellsville
John Lyon	18 Meadowbrook St. Wellsville

PETITION FOR APPROVAL OF STANNARDS DAM PROJECT

We, the undersigned residence of Allegany County hereby articulate our approval of the US Army Corps of Engineers' proposal for the construction of a dam in Stannards, New York provided that the completed project will be managed as a recreational facility, including no draw-down of the high water level during the summer months, Memorial Day through Labor Day and fish management.

[signature]	
Richard Bunnell	83 HILL ST. BELFAST

September 23, 1987

Eugene Miller
Co-Pastor: Yorks
Corners Mennonite Church
RD #1, Box 194
Wellsville, NY, 14895

Col. Daniel Clark
Department of the Army
Buffalo District, Corps of Engineers
1776 Niagara St.
Buffalo, NY 14207-3199

Dear Col. Clark,

I am opposed to the proposed construction of a dam near Stannards, NY [as outlined in the U.S. Army Corps of Engineers, Buffalo District, "Reconnaissance Report," "Genesee River Basin Study" Volune I, dated August, 1986, revised December, 1986] for several reasons.

First and foremost, it would destroy a community. The lives of many would be severely disrupted. Many of those living in this valley have deep roots in this community. The Church at Yorks Corners is active and growing and has been an integral part of this community for many years. We do not wish to see the graveyard across from the church disturbed.

Secondly, the area currently provides excellent wildlife habitat with good hunting, fishing, hiking and other outdoor recreation. This would all be destroyed.

Thirdly, from an economic viewpoint, I believe that the construction of a dam cannot be justified.

Sincerely,

Eugene Miller

Eugene Miller
Co-Pastor: Yorks
Corners Mennonite
Church

Date:

Department of the Army
Buffalo District, Corps of
Engineers
1776 Niagara Street
Buffalo, NY 14207-3199

ATTN: Col. Daniel Clark
District Commander

Dear Col. Clark:

Please be informed that I am opposed to your proposed construction of a dam (reservoir on the Genesee River, at or near Stannards Corners, NY). Said proposal as outlined in the U.S. Army Corps of Engineers, Buffalo District, "Reconnaissance Report," "Genesee River Basin Study" Volume I, Main Report, dated August, 1986, revised December, 1986. Let it be known that I am opposed to any or all of the twelve (12) plans as outlined in said Report.

I remain,

Name:
Address:
City, Zip:

MAILROOM-NCBIM-S

20 Oct 87 09 12

Date: [illegible]

Department of the Army
Buffalo District, Corps of
Engineers
1776 Niagara Street
Buffalo, NY 14207-3199

ATTN: Col. Daniel Clark
District Commander

Dear Col. Clark:

Please be informed that I am opposed to your proposed construction of a dam (reservoir on the Genesee River, at or near Stannards Corners, NY). Said proposal as outlined in the U.S. Army Corps of Engineers, Buffalo District, "Reconnaissance Report," "Genesee River Basin Study" Volume I, Main Report, dated August, 1986, revised December, 1986. Let it be known that I am opposed to any or all of the twelve (12) plans as outlined in said Report.

I remain, [illegible],

Joann Ives

Name: [illegible]
Address: [illegible]
City, Zip: [illegible]

Date: Sept 1987

Department of the Army
Buffalo District, Corps of
Engineers
1776 Niagara Street
Buffalo, NY 14207-3199

ATTN: Col. Daniel Clark
District Commander

Dear Col. Clark:

Please be informed that I am opposed to your proposed construction of a dam (reservoir on the Genesee River, at or near Stannards Corners, NY). Said proposal as outlined in the U.S. Army Corps of Engineers, Buffalo District, "Reconnaissance Report," "Genesee River Basin Study" Volume I, Main Report, dated August, 1986, revised December, 1986. Let it be known that I am opposed to any or all of the twelve (12) plans as outlined in said Report.

I remain,

Name:
Address:
City, Zip:

28SEP87 12 50

HAILROOM-NCBIM-S

MT. MORRIS

PRO & CON

10 Delaware Avenue

Rochester, New York 14623

October 4, 1987

Colonel Dan Clark, Director

Mr. Wiener Cadet, Project Manager

Army Corps of Engineers, Buffalo District

1776 Niagara St., Buffalo, New York 14207

Gentlemen:

We live at East River Road and Delaware Avenue in the Genesee River flood plain (elevation approximately 520 ft.), as shown on the attached map.

Even with the flood protection of the Mt. Morris dam, Federal Flood Insurance was required when we purchased this property in 1986.

We want to be sure that the Mt. Morris installation is operated and maintained to provide maximum flood protection with or without incidental hydroelectric generation.

If any major modifications or changes are contemplated or realized at Mt. Morris, the flood protection factor should take precedence.

We are also sensitive to the cost of electric energy and would have serious reservations about the addition of any hydroelectric systems that would result in increased charges to consumers of electric energy.

Yours respectfully

Bradshaw Burnham

Bradshaw Burnham.

GLEN-COE CONSERVATION SOCIETY, INC.

COLDEN, N.Y.

April 8, 1988

Colonel Daniel R. Clark
District Engineer-Buffalo District
US Army Corps of Engineers
1776 Niagara Street
Buffalo, NY 14207

Dear Colonel Clark,

The members of The Glen-Coe Conservation Society would like to extend a note of Thank-You to you for allowing Mr. Wiener Cadet and Mr. Dan Kelley to give a presentation on the proposed Damn modifications of the Genesee River at Mount Morris, New York. The presentation at our March 29, 1988 monthly meeting was extremely enlightening and very thorough. Mr. Cadet was well prepared to discuss and explain all background information as well as current studies and future effects of the project.

The discussions that followed the presentation, amoung members, were all in agreement. Given the information presented the members felt that the project was a step in the right direction to provide better storage capacity at the damn site and thus conserve land and soil under extreme conditions. We were all greatful to have had the opportunity to take part in the program that was presented.

Sincerely,

William H. Solak, Club Secretary

cc: Mr Wiener Cadet
Mr Dan Kelley

JOHN A HAHN
2 SHARON CT
CHEEKTOWAGA, NY 14225

9/22/87

CORPS OF ENGINEERS,

I WOULD LIKE TO STRONGLY PROTEST ANY IDEA THE CORPS MAY HAVE FOR BUILDING A DAM IN LETCHWORTH STATE PARK.

I DONIT UNDERSTAND HOW A BEAUTIFUL PUBLICLY OWNED PARK, CAN BE TAKEN AWAY FROM THE PEOPLE OF NY STATE FOR PRIVATE PROFIT.

MY FAMILY AND I HAVE ENJOYED THAT PARK FOR YEARS, AND I EXPECT IT TO BE INTACT FOR MY GRANDCHILDREN.

THAT PARK WAS GIVEN TO THE PEOPLE FOR THEIR ENJOYMENT, AND NOT FOR SOMEONE TO FLOOD FOR PROFIT.

LEAVE IT THE WAY IT IS! NO DAMS.

VERY TRULY YOURS

John A Hahn

9-23-87
8506 Heath Road
Colden, N.Y. 14033

Dear Mr. Cadet,

Please don't build the new dam in Mt. Morris. We don't want to see anything happen to our beautiful Letchworth State Park.

Sincerely,
Nancy & Ray Castro

Sept 25, 1987
4418 Canal Rd.
Spencerport, N.Y.
14559

MAILROOM-NCBIM-S

30 SEP 87 11 28

Dear Sirs:

I am appalled that you are even considering allowing the Mitex Corp of Boston, Mass. to build dams in the Letchworth Park Area. The flooding that would result from the Mount Morris Dam to Wolf Creek would alter the recreational and scenic wonders of the present gorge.

It is my understanding that the new dams will not aid in flood control and their sole purpose is to make money for a private corp.

Isn't it time the present administration stop selling us & our environment for a few pieces of silver.

Sincerely yours
Thomas W. Lewis

NAIRCM-NCSIM-S

OCT 87 1109

20 Rensselaer Dr.
Rochester, N.Y. 14618
October 15, 1987

Col. Dan Clark, Director
Mr. Wren Cadet, Project Manager
Army Corps of Engineers, Buffalo District
1776 Niagara Street
Buffalo, New York 14207

Dear Col. Clark and Mr. Cadet,

It has come to our attention recently that the Army Corps of Engineers has proposed a reservoir within Letchworth St. Park. We understand that the primary economic benefit would be to the Griffiss Corp. of Boston. R&E of Rochester has testified that power costs from this facility would increase local rates, rather than decrease them.

Aside from this factor, we are strongly opposed to any project that would so drastically alter the character of Letchworth Park. It is one of the prime scenic and recreational areas in the state, and is enjoyed annually by thousands. We urge you not to carry through with this project.

Sincerely,
Mr. and Mrs. James P. Borden

October 3, 1987

Col Danniel Clark
U.S. Army Corp of Engineers
1776 Niagara Street
Buffalo Ny. 14207

Dear Sir:

I Am Writting you in regards to the Two dams that you Have Proposed To build in The Genesee river. I Am Against The building of These dams in The Genesee river As it would Ruin Some good Trout breeder Streams And wood duck Nesting Areas. Which we realy Need To Protect.

I Wish The Corp Could find Some other Projects To emProve The enviREMENT instead of destroying it. IT seems To Me That every Project The Corp doe's you Make Matters Worse instead of enproving Them. If you Need A Project Why Can't you build More Harbers And Boat Excess Sites Along lake Erie Which We Need badely in The South Towns Area.

Yours for Conserveation

Calvin M Arthur

Calvin M. Arthur
84694 Morgan Parkway
Hamburg Ny. 14075

Sirs —

Let Boston obtain their
own water Power — "Down with
Down Dam" — Preserve
Letchworth !!

"Down With the Dam"

Susan McCarthy
1217 Delaware Ave
Buffalo N. Y
14209

MAILROOM-NCBIM-S

OCT 87 11 27

THOMAS G. WHITE
56 Sable Palm Drive
Depew, New York 14043
PHONE (716) 684-4931

September 29, 1987

Mr. Wiener Cadet, Project Manager
Corps of Engineers
1776 Niagara St.
Buffalo, N. Y. 14207

Dear Sir:

My wife and I have read with great interest and concern the Letters to the Editor which appeared in the Buffalo News a week or so ago.

One of these letters, by a Batavia resident, concerned plans underway to build another dam and flood part of the Genesee River gorge, thereby damaging and destroying thousands of acres of park land by burying it under water.

As people who have enjoyed Letchworth Park in its present state, we are opposed to this needless undertaking.

Yours sincerely,

Thomas G. White

Thomas G. White

Virginia C. White

Virginia C. White

24 Park Place
Holley, New York 14470
October 6, 1987

Col. Dan Clark, Director
Weiner Cadet, Project Engineer
Army Corps of Engineers, Buffalo Dist.
1776 Niagara Street
Buffalo, New York 14207

Dear Col. Clark:

My family, at least three generations, has loved and enjoyed Letchworth Park for many, many years. Without a doubt the Gorge has been its most fascinating aspect.

The additional flooding of at least 11 miles of the Gorge will have a detrimental impact on the beauty and activities associated with it.

I urge that the proposal for additional flooding of the Gorge for hydropower purposes be abandoned.

Sincerely,

Lawrence D. Mark

Lawrence D. Mark

129 West Avenue
Fairport, New York 14450
September 26, 1987

Wiener Cadet
Project Manager
Corps of Engineers
1776 Niagara Street
Buffalo, N.Y. 14207

Gentlemen:

Please consider this a strong protest against the proposed plan to flood the Letchworth gorge! The very thought of tampering with this park is an abomination.

This land was a gift to future generations so they could enjoy nature in its finest array. Mr. Letchworth, not unlike Henry David Thoreau, was a man of vision.

Let us not rape the land, nor tamper with the balance of nature. Men are blinded by dollar signs when they even consider such a venture.

In this time of bulldozing, stripping, polluting, and dumping, may we have the good sense to keep hands off the few virgin areas we have left.

I cannot emphasize this point enough.

Sincerely,

Donna Wilcox Edgerton

Donna Wilcox Edgerton

October 5, 1987

MAILROOM-NCBIM-S

7 Oct 87 10 21

Col. Dan Clark, Director
Army Corps of Engineers, Buffalo District
1776 Niagara St.
Buffalo, NY 14207

Dear Col. Clark:

It has come to my attention that the Corps has plans to alter the Mt. Morris dam to create a reservoir involving the Genesee River gorge at Letchworth. I also note that this construction will not be to the benefit of the citizens of New York; that, on the contrary, it will be to our detriment: raising electricity rates to New Yorkers, while a private concern in Massachusetts profits from the hydropower facility; converting a popular white-water river into a lake, destroying a recreation area used by canoeists, rafters and kayakers, as well as inundating woods and hiking trails in the Gorge; and all this with no net improvement in flood-control capabilities at the dam.

I would like to go on record as opposing this effort to damage the ecosystem and recreational opportunities at one of our state parks.

Sincerely,

John S. Howell

John S. Howell, MD
P.O. Box 1160
Fairport, NY 14450

cc: Sen. Alfonse M. D'Amato, NY
Sierra Club, Atlantic Chapter

[illegible]-NCBIM-S

[illegible] 09 31

TO: Col. Dan Clark, Director
Mr. Wiener Cadet, Project Manager
Army Corps of Engineers, Buffalo District
1776 Niagara St.
Buffalo, New York 14207

I oppose any projects which would alter the character of the Genesee River and Letchworth Gorge within Letchworth State Park. The proposed creation of the Letchworth Reservoir would severely compromise the scenic beauty of the Park, destroy whitewater recreational activities, and innundate and destroy the unique ecosystem existing within the Gorge.

Letchworth State Park was created for the use and enjoyment of all the people of New York State through the generosity and foresight of Mr. Letchworth. I oppose any attempt to wrest this stretch of the Genesee River and the beauty of the Gorge away from the residents of New York State.

Signed: James J. Caffery

Address: 793 Chili Ave
Rochester NY 14611

MAILROOM-NCBIM-S

29 Sep 87 09 16

TO: Col. Dan Clark, Director
Mr. Wiener Cadet, Project Manager
Army Corps of Engineers, Buffalo District
1776 Niagara St.
Buffalo, New York 14207

I oppose any projects which would alter the character of the Genesee River and Letchworth Gorge within Letchworth State Park. The proposed creation of the Letchworth Reservoir would severely compromise the scenic beauty of the Park, destroy whitewater recreational activities, and innundate and destroy the unique ecosystem existing within the Gorge.

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Signed: _____

Address: _____

_____

TO: Col. Dan Clark, Director
Mr. Wiener Cadet, Project Manager
Army Corps of Engineers, Buffalo District
1776 Niagara St.
Buffalo, New York 14207

I oppose any projects which would alter the character of the Genesee River and Letchworth Gorge within Letchworth State Park. The proposed creation of the Letchworth Reservoir would severely compromise the scenic beauty of the Park, destroy whitewater recreational activities, and innundate and destroy the unique ecosystem existing within the Gorge.

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Signed: Karen & Judith Zink

Address: 1151 Bradley Tree Dr

Webster, New York 14580

MAJROM-NCBIM-S

23 SEP 87 09 16

TO: Col. Dan Clark, Director
Mr. Wiener Cadet, Project Manager
Army Corps of Engineers, Buffalo District
1776 Niagara St.
Buffalo, New York 14207

I oppose any projects which would alter the character of the Genesee River and Letchworth Gorge within Letchworth State Park. The proposed creation of the Letchworth Reservoir would severely compromise the scenic beauty of the Park, destroy whitewater recreational activities, and innundate and destroy the unique ecosystem existing within the Gorge.

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Signed: Maria Bozoukis

Address: 456 Covewood Blvd
Webster N.Y 14580

42

TO: Col. Dan Clark, Director
Mr. Wiener Cadet, Project Manager
Army Corps of Engineers, Buffalo District
1776 Niagara St.
Buffalo, New York 14207

I oppose any projects which would alter the character of the Genesee River and Letchworth Gorge within Letchworth State Park. The proposed creation of the Letchworth Reservoir would severely compromise the scenic beauty of the Park, destroy whitewater recreational activities, and innundate and destroy the unique ecosystem existing within the Gorge.

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Signed: [signature]

Address: [signature]

MAILROOM-NCBIM-S

29 SEP 87 09 16

TO: Col. Dan Clark, Director
Mr. Wiener Cadet, Project Manager
Army Corps of Engineers, Buffalo District
1776 Niagara St.
Buffalo, New York 14207

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Letchworth State Park was created for the use and enjoyment of all the people of New York State through the generosity and foresight of Mr. Letchworth. I oppose any attempt to wrest this stretch of the Genesee River and the beauty of the Gorge away from the residents of New York State.

Signed: Clara Lockwood

Address: Box 517 RD 2
Randolph, N.Y. 14772

Save **PETITION to SAVE LETCHWORTH STATE PARK** Letchworth!

We, the undersigned, do hereby petition the U.S. Army Corps of Engineers to **HALT ALL EFFORTS BY OUT-OF-STATE INTERESTS TO DESTROY LETCHWORTH STATE PARK** by flooding nearly 13 of the 17 miles of the Genesee River gorge for the benefit of "cheap" hydropower, leaving mud flats and ruin where now stands the "**GRAND CANYON OF THE EAST.**"

NAME	ADDRESS
C. J. Kijewski	247 Ransom Rd Lanc. NY 14086
Cheryl Harding	12475 Broadway Alden, NY 14004
[illegible]	13515 Broadway Alden N.Y. 14004
[illegible]	[illegible] Darien Ct. NY 14040
Ronald R. Pawlak	95 Milburn St Buffalo N.Y. 14212
Henry Zwandun	89 [illegible] Lancaster NY 14086
[illegible] Gimmel	13230 Clifton St Alden NY 14004
W. Kay Adams	[illegible] Alden NY 14004
[illegible] Martin	1434 Westwall Ave Alden NY 14004
[illegible]	13352 Park St Alden NY "
Gil Horlein	12691 [illegible] Marilla NY 14052
Richard E. [illegible]	1829 Lafayette St. Alden, NY 14004
Harriet D. Eastland	12444 Broadway Alden NY 14004
A. T. DeGrange	114 E Summerset Ln N. Ton NY 14120
[illegible]	13701 Rt 78 Apt #2 S. Wales NY 14139
Sandra Enser	1154 Exchange St Alden NY 14004
Ronald E. Meider	846 Mammot Rd Alden, NY 14004
Frances Syez	12869 Dunne Brn Dr. Alden Ny 14004
Norman E. Lauck	589 Schoellkopf Cowlesville NY 14037
Gail VanOlden	13515 Broadway Alden NY 14004
Rick Hames	2053 Church Rd Darien Center NY 14040
Richard Bugiak	2742 Geo Urban Depew N.Y. 14043
Mark Butler	87 Dempster St. Bflo NY 14206
[illegible]	1146 Marcin Rd Attica N.Y. 14011
John A. Slack	10391 Broadway Darien Ctr, NY 14040
[illegible]	13032 [illegible] Akron, NY 14001
Robert E. Stubbles	831 Four Rod Rd Alden N.Y. 14004
David Wisnowski	1973 Broadway Darien N.Y. 14040
Wayne P. Matthews	957 E. Alaura Alden N.Y. 14004
Chris Anstett	10970 Bethany Ctr Rd E Bethany NY

Please return to:

Shirley A. Scherlein, 12917 Main St., Alden, NY 14004 - 937-6337.

Save Letchworth!

PETITION to SAVE LETCHWORTH STATE PARK

We, the undersigned, do hereby petition the U.S. Army Corps of Engineers to **HALT ALL EFFORTS BY OUT-OF-STATE INTERESTS TO DESTROY LETCHWORTH STATE PARK** by flooding nearly 13 of the 17 miles of the Genesee River gorge for the benefit of "cheap" hydropower, leaving mud flats and ruin where now stands the **"GRAND CANYON OF THE EAST."**

NAME	ADDRESS
Don Bot[illegible]	11093 Allegheny Rd Dr. [illegible] 14040
Scott D. Taylor	13024 Broadway / Alden 14004
Patrick Thurnherr	1271 Urf Rd Cowlesville N.Y. 14037
Judy Yount	1852 Two Rod Rd Marilla N.Y. 14102
Marie Fisher	[illegible] Lawn Ct Alden, NY 14004
Jim Anderson	[illegible] Av [illegible] NY [illegible]
[illegible]	[illegible]
[illegible] Bell	[illegible] NY
J. C. Bard	11031 Fairview Dr / Lancaster 14086
David J. Wojciechowski	1490 Church St Alden N.Y. 14004
Betty Lichtenmayer	4 Evergreen Dr, Lancaster, NY, 14086
Thomas J. Henska	13800 Henskee Rd. Alden NY.
Peggy Byers	55 Oxford Ave Lanc 14086
Gerri Lysiak	310 Getman Rd Alden N.Y 14004
Judy Antala	13440 Railroad Alden Ny 14004
[illegible] Lang	1450 Rucker Dr Alden NY 14004
Joseph D. [illegible]	284 County Line Rd Alden NY 14004
Pamela J. Holzschuh	170 Clinton St Cowlesville NY 14037
[illegible]	1575 Schaner Rd Corfu NY 14036
Kevin Romal	1828 Arlington Dr Alden NY 14004
TERRY KUKLE	13397 Broadway Alden NY 14004
Janet Pfalzer	2764 Wende Rd Alden NY 14004
Claire Fugle	120 Main St Attica NY 14011
Karen L. Bunny	1385 Kellogg St Alden NY 14004
[illegible] Wyckoff	1455 Allegany Rd Attica 14011
[illegible]	1920 Sandridge Rd Alden NY 14004
Sandra Moreau-Kotyk	12255 Buckwheat Rd Alden NY 14004
Stephen R. [illegible]	110 Westwood Rd Lancaster N.Y. 14086
Kelly Patterson	12510 Sloan Ct Alden N.Y. 14004

Please return to:

Shirley A. Scherlein, 12917 Main St., Alden, NY 14004 - 937-6337.

Save **PETITION to SAVE LETCHWORTH STATE PARK** Letchworth!

We, the undersigned, do hereby petition the U.S. Army Corps of Engineers to **HALT ALL EFFORTS BY OUT-OF-STATE INTERESTS TO DESTROY LETCHWORTH STATE PARK** by flooding nearly 13 of the 17 miles of the Genesee River gorge for the benefit of "cheap" hydropower, leaving mud flats and ruin where now stands the **"GRAND CANYON OF THE EAST."**

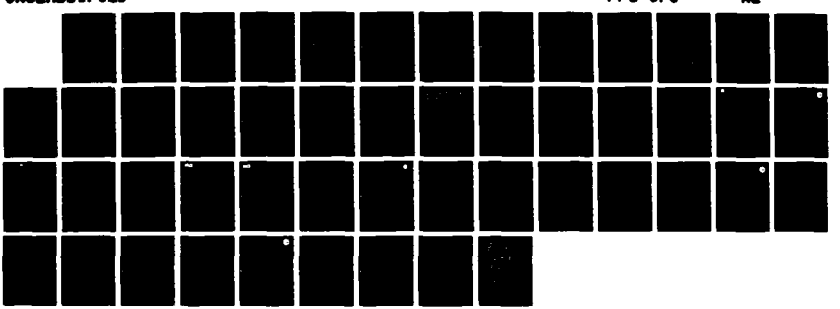
NAME	ADDRESS
[illegible]	1187 [illegible] Rd Alden
Jerry Hajda	11099 Broadway Alden NY 14004
[illegible] Koller	778 Marrnot Rd Alden, NY 14004
[illegible] Wolcott	85 Little Lk. Rd. Alden, NY 14004
[illegible]	511 Genesee Rd Cofa N.Y. 14036
Kimberly D. Kenfon	2930 Weide Rd. Alden N.Y.
[illegible] McCaak	13371 Broadway Alden
[illegible]	1578 Crittenden Rd Alden NY
[illegible]	1067 Townline Rd. Lancaster NY
[illegible]	7 Three Rod Rd Alden NY 14004
Basil De Blasi	50.-626-Four Rod Rd Alden N.Y. 14004
[illegible]	1504 Burrough Rd, Collinsville NY 14037
Mrs. Colleen J. Gilmore	10657 Allegheny Rd. Darien N.Y. 14040
Mrs Ruth E Creighton	13875 Broadway Alden NY 14004
James F. Creighton	13875 Broadway Alden NY 14004
Deanne Reiner	1431 Poland Hill Attica 14011
Patrick Foster	178 Paul Dr N. Tonawanda N.Y. 14120
Sue Hurley	11665 Crittenden St Alden NY 14004
Donna Andrews	12111 Anne Dr Alden, N.Y. 14004
Margaret [illegible]	11244 Clinton St Elma, NY 14059
Jerry Neuman	332 Maple Rd Corfu, N.Y. 14036
[illegible]	1450 Rushen Alden NY 14004
[illegible]	372 Allegheny Rd Darien Center NY 14040
Sandi Smith	1210 Cotton Hill Rd Bennington NY 14011
[illegible] Jendrewski	94A Bush Gardens Alden NY 14004
[illegible] Snyder	4 Linden Park Akron N.Y. 14001
[illegible] Borkowski	708 Ransom Rd. Lancaster NY 14086
[illegible]	5949 [illegible] Rd Alexander NY 14005
Jeneane Lee	987 Erie Rd Lane NY 14086
Rochelle Wierey	1578 Crittenden Rd Alden NY 14004

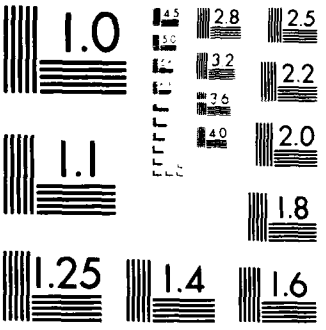
Please return to:

Shirley A. Scherlein, 12917 Main St., Alden, NY 14004 - 937-6337.

AD-A197 479 GENESEE RIVER BASIN STUDY VOLUME 2 SUPPORTING DOCUMENTATION(U) CORPS OF ENGINEERS BUFFALO NY BUFFALO DISTRICT JUN 88 3/3

UNCLASSIFIED F/G 8/8 NL





MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS 1963-A

Save **PETITION to SAVE LETCHWORTH STATE PARK** Letchworth!

We, the undersigned, do hereby petition the U.S. Army Corps of Engineers to **HALT ALL EFFORTS BY OUT-OF-STATE INTERESTS TO DESTROY LETCHWORTH STATE PARK** by flooding nearly 13 of the 17 miles of the Genesee River gorge for the benefit of "cheap" hydropower, leaving mud flats and ruin where now stands the "**GRAND CANYON OF THE EAST.**"

NAME	ADDRESS
[illegible]	[illegible] Elm Alden NY
Craig Ewert	110 Sawyer Depew NY
Karen Rogers	172 Peppermint Rd Lancaster NY
John Rogers	172 Peppermint Rd Lancaster N.Y.
[illegible]	3647 Crittenden Crittenden NY 14038
Pete Kasper	65 Bristol Rd Clinton N.Y.
Janet [illegible] Evans	65 Bristol Rd Clinton NY
Jeannette Mitrowski	899 Three Rod Rd. Alden N.Y. 14004
[illegible] Mitrowski	96 Rumsey Rd Buffalo, N.Y. 14209
M. Bonaui [illegible]	
[illegible]	298 [illegible] Alden N.Y. 14004
[illegible]	3629 Crittenden Rd Crittenden, N.Y. 14038
Jannine Nowicki	4616 Briarwood Alden NY 14004
Jim Haight	1092 Four Rod Alden NY 14004
Carol Thompson	4805 Transit Rd *701 Depew, NY 14043
Krista Langdon	4805 Transit Rd, #701, Depew, NY 14043
Gene Thompson	4805 Transit Rd, #701, Depew, NY 14043
William Langdon	13515 Broadway Alden N.Y. 14004
Pamela Sauer	13135 North Rd. Alden NY 14004
Chris Evans	Box 50 RD#1 Almond NY 14804
Melanie Weimer	883 Broadway Darien Ctr NY 14040
Michael [illegible]	13333 Broadway Alden N.Y. 14004
Alda Brazeau	3135 Westside Dr Alden N.Y. 14004
Debbie Meyer	P.O. 577 Varysburg N.Y. 14167
Mary Ann [illegible]	807 Ransom Rd Lancaster 14086
[illegible]	30 Tulane Rd [illegible] 14217
[illegible]	13382 Railroad St Alden N.Y. 14004
C. [illegible]	1698 Meadow Dr., Alden, N.Y. 14004
Herbert [illegible]	3355 Wende Rd Alden N.Y. 14004
Dick [illegible]	2143 Cambridge Rd Alden 14004

We only have until October 10th! Please return by October 8th to:
Shirley A. Scherlein, 12917 Main St., Alden, NY 14004 - 937-6337.

Save Letchworth!

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NAME	ADDRESS
Otto [illegible]	2579 Clinton St. W. Seneca NY 14224
Chet M. Dudek	3448 Greenway Rd. G.I. N.Y. 14072
Tamara M. [illegible]	2053 William St Cheek NY 14206
Cecilia Zadner	217 Rosslee, Cheek, NY 14206
[illegible] E. [illegible]	133 [illegible] Street Buffalo N.Y. 14206
Stanley J. Zygoda	327 Casimer St Buffalo N.Y. 14206
Genevieve Bakowski	253 Stanley St. Cheek 14206
[illegible] Kozlowski	118 Meadow Brook Pkwy 14206
[illegible] A. [illegible]	151 [illegible] Rd Bflo 14210
Joseph F. [illegible]	73 [illegible] St Bflo NY 14206
Thomas [illegible]	19 Cochrane St Bflo N.Y. 14206
Kathleen Filipski	160 [illegible] Dr. Ctg NY 14225
Joseph [illegible]	45 Westchester Rd Ctg NY 14225
[illegible] Halas	260 Davey St. Bflo N.Y. 14206
Joe [illegible]	94 Whitfield St. Bflo N.Y. 14206
Monica Wasniewski	75 Nandale Dr. Cheektowaga
Debbie [illegible]	10519 Creek Rd Springville, N.Y. 14141
[illegible] J. Pastor	309 N Meadowbrook, Cheek, NY 14206
Thomas Greenwald	4 Sandy Lane Cheektowaga NY 14227
John [illegible]	7 Griswold St Bflo N.Y. 14206
Stanley T. [illegible]	100 North Ave. West Seneca NY 14224
Edward [illegible]	192 Clover St Buffalo NY 14206
[illegible] Schuh	147 [illegible] Bflo NY 14202
Lorraine [illegible]	123 [illegible] St. Cheek N.Y. 14206
[illegible] Ella [illegible]	134 Kilhoffer Bflo NY 14211
Anne M. [illegible]	71 Nash Ave Bflo 14206
Stanley A. [illegible]	54 Boynton Av W. Seneca N.Y.
[illegible] M. [illegible]	72 [illegible] St. Buffalo NY
Cheryl & Joe Wittmeyer	75 Warren Ave Bflo NY 14212

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NAME	ADDRESS	
Barbara J. Gueli	444 Weimar St.	Bflo NY 14206
Paul [illegible]	461 Griggs Pl	E. Aurora NY
William [illegible]	230 Fremont Ave	West Seneca NY 14224
[illegible]	123 Pleasant Pkwy	Bflo NY 14206
[illegible]	47 Weaver St.	Bflo NY 14206
[illegible]	1584 Towerwood	Gr. Island
[illegible]	46 [illegible] St	Buffalo NY 14206
Gary R. [illegible]	451 Walnut Ave	Angola, N.Y. 14006
A.M. [illegible]	4 Hidden Vil	W. Seneca NY 14224
Mary [illegible]	1310 Spruce	Buffalo
Joe [illegible]	759 Smith st	Buffalo N.Y. 14206
Michael [illegible]	759 Smith st	Bflo. N.Y. 14206
[illegible]	476 South Ogden	Buffalo N.Y. 14206
Robert B[illegible]	25 Boynton Ave.	W Seneca N.Y. 14224
Delphine [illegible]	8 Boynton Ave	W. Seneca N.Y. 14224
[illegible]	53 [illegible] Ave.	Buffalo 14206
Carol [illegible]	620 7th	Buffalo 14213
Louise [illegible]	412 Shanley St.	Buffalo 14206
[illegible]	303 Halstead	Sloan N.Y. 14212
Joe [illegible]	125 Pleasant Pkwy	Bflo NY 14206
Nancy [illegible]	461 Griggs Pl	East Aurora NY 14052
[illegible]	80 [illegible] Ave	Cheek. 14227
[illegible]	218 South Ogden	Buffalo 14206
[illegible]	6130 Clinton St.	Elma NY. 14059
[illegible]	130 [illegible] Dr	Cheek NY 14206
M. Kochanowski	61 Shanley	Cheek NY 14206
K. Crooks	135 Weaver	Bflo NY 14206
E. Dabrowski	339 Casimer St.	Bflo., N.Y. 14206
Alex F. Biedron	130 Moselle	Buffalo N.Y. 14211
Raymond [illegible]	127 [illegible] Ave	Cheektowaga NY 14206

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855-3801

Save

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NAME	ADDRESS
Joan Zirsch	67 Stutzman Rd. Bowmansville NY 14026
Sue Banning	13264 Irving Alden NY 14004
Mary Ann Strohl	3105 Wende Alden 14004
Walter Steven	67 Clinton St. Alden N.Y. 14004
Theresa Acquard	99 Clinton St Alden N.Y. 14004
Myma F Fox	13806 Broadway Alden NY 14004
Roberta Kozlowski	18 Lake Ave Lancaster NY 14086
Lorraine A. MacKenzie	12180 S Bloom Ln Alden 14004
Kenneth L. Weir	1439 Mechanic Street Alden ALDEN, N.Y. 14004
Scott C Appleby	1227 Greenfield Alden NY 14004
Don Jubert	1482 Westcott Alden N.Y. 14004
Paul Hoff	13340 Roth Road ALDEN NY 14004
Leigh J. Martin	11916 Broadway Alden NY 14004
John Easton	1289 Olean Rd South Wales 14139
Ross Munch	Bonnie Ln Alden 14004
Phyllis Walker	1381 Mechanic St Alden 14004
Paul Werner	1608 Meadow Dr Alden 14004
Coleen Sienkiewicz	9926 Creek Rd Batavia 14020
Anita Baker	2000 Crittenden Rd. Alden 14004
[illegible]	177 [illegible] Lane 14086
David [illegible]	21 Knapp Rd AKRON NY 14001
Donald J. Schulte	40 Lawrence Buffalo N.Y. 14213
Jackie [illegible]	1493 Clinton St. Attica NY 14011
Joseph Rabicki	148 Lindfield Rd. Williamsville, N.Y. 14203
Madeline Jones	1858 Arlington St Alden 14004
Carol Janicek	11032 Broadway Alden NY 14004
Roberta McCall	1707 Baptist Alden N.Y. 14004
Pat Rogers	13[illegible] Clinton St Alden NY 14004

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NAME	ADDRESS
Joyce Kirsch	Cowlesville, N.Y.
[illegible] E. Wyse	Alden NY
Richard E. Happ	Corfu, N.Y.
Jamie Mitchell	Alden, N.Y.
Barb Sitzman	alden, NY
[illegible]	alden, NY
[illegible]	Alden, N.Y.
[illegible]	Alden NY
Amelia Pastuszynski	Alden, N.Y.
A. Chevallier	Alden, N.Y.
[illegible]	Alden N.Y.
Paul Geil	Alden NY
Pauline C Knell	Pendleton, NY
Jan Huff	1876 CHICK Rd, DARIEN
[illegible]	Oakfield N.Y.
Bob Rebmann	13515 Broadway Alden
[illegible]	1895 [illegible] Rd. Lancaster N.Y.
Ruth Y. Barden	3645 S Newstead Rd Akron NY 14001
Karen [illegible]	61 Orchard Ave. Rye NY 10580
M Vash	alden N.Y
J. Scherer	Corfu. N.Y.
[illegible]	ALDEN, NY
[illegible]	1007 EXCHANGE ALDEN NY 14004
Charles [illegible]	13338 PARK ST ALDEN N.Y. 14004
Christine A. Ulrich	12914 Broadway Alden
[illegible]	12258 [illegible] Rd Alden N.Y. 14004
Kay [illegible]	3396 County Line Corfu, N.Y. 14036
[illegible] W. [illegible]	45 [illegible] Ridge [illegible] ORCHARD PARK N.Y.
Walter [illegible]	33 [illegible] St. Lancaster N.Y.
[illegible]	3-[illegible] Rd Alden, NY 14004

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NAME	ADDRESS
Henry W Welnicki Jr.	202 County Line Road, Alden, New York
Lance V. Gray	12351 S. Blossom Lea Alden, NY 14004
[illegible]	6403 Genesee Lanc. N.Y. 14086
James L. [illegible]	6814 Kellogg St Alden 14004
Elizabeth Rumbock	11431 Genesee St Alden NY 14004
Heather Barlow	2207 Townline Rd Alden NY 14004
Chris Allan	12974 Clinton St. Alden NY 14004
Jeremy Zymowski	1463 Kellogg St Alden NY 14004
Ronald W. [illegible]	13281 [illegible] Alden NY 14004
Sandra L. Bugger	1586 Emerson St. Alden, N.Y. 14004
[illegible]	5158 Hunter Ck E Aurora NY 14052
[illegible]	12527 Genesee St Alden N.Y 14004
Patricia [illegible]	1767 Sandridge Rd. Alden N.Y 14004
Christopher J. Smith	13522 North Rd Alden N.Y. 14004
[illegible]	2775 County Line Rd Corfu NY 14036
Raymond P. Bartosh	105 [illegible] Dr. Alden N.Y. 14004
Paul Arthur [illegible]	5239 Three Rod Rd. Alden N.Y. 14004
Mark Fatta	13378 Mercer Alden, N.Y 14004
William J. Barker	1170 Stolle Rd. Elma NY 14059
Edith Mortelbaan	12387 Westwood Alden ny 14004
Michele Szczygiel	10847 Tinklam Darien 14040
David Swann	786 2 Rod Rd Marilla NY. 14102
Jennifer [illegible]	1417 [illegible] Alden NY 14004
Mark Lynch	1717 Two Rod Rd Marilla NY 14102
[illegible]	1417 Blossom Lea Alden NY 14004
John Welnicki	400 Lafayette Bflo NY 14213
Darina Blakeslee	13249 Broadway Alden N.Y. 14004
Kathy Coleman	13249 Broadway Alden, N.Y 14004
James P. Faso	13550 Genesee Crittenden 14038
[illegible]	1210 Cotton Hill Rd Bennington 14011

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NAME	ADDRESS		
John Best	3843 N Millgrove	Alden	14004
Karen Barry	1195 Exchange St.	Alden	14004
[illegible]	1031 Exchange St	Alden	14004
Shirley [illegible]	4088 Crittenden Rd.	Akron	14001
Wendell [illegible]	4088 Crittenden Rd.	Akron	14001
[illegible] Snyder	2355 Woodside Drive	Alden N.Y.	14004
Chris [illegible]	902 Exchange St.	Alden	14004
Richard Sterner	1562 Crittenden St	Alden	14004
Tony Salim Jr.	1482 Kellogg St.	Alden	14004
Shirley [illegible]	1450 Rushin Dr.	Alden	14004
[illegible]	256 Sargent	Cowlesville	14037
Scott Fitschen	1347 2 Rod Rd.	Alden	14004
Jim Wawrzyniak	227 [illegible] Rd	Alden	14004
Joe Wozniak	101 North Shore Dr.	Alden	14004
Dan Lypel II	[illegible] Hall Rd.	Elma, NY	14059
Anne Backlas	298 Maple Rd.	Corfu, N.Y.	14036
Robert N Kulrabko Jr	954 Townline Rd	Lancaster N.Y.	14086
Frank C Bauer	11560 Genesee St	Alden NY	14004
Robert J Young Jr	1406 Mechanic St	Alden NY	14004
James C. [illegible]	1468 Kellogg St	Alden	14004
Beverly Bolling	2565 Peters Corners	Alden	14004
Michael Bolling	2565 Peters Corners	Alden	14004
John O [illegible]	1224 Sullivan Rd	Alden	14004 NY
Philip J [illegible]	16 Buchanan St.	Albany N.Y.	12206
[illegible] W. Smith	1593 Emerson St.	Alden NY	14004
[illegible]	500 Murray Ross Pkwy	Toronto Canada	
Darcy C. Maloney	Calgary Alberta		
Mark J. [illegible]	12971 Broadway	Alden NY	
Paul Lawrinowicz	13137½ Broadway	Alden NY.	
Francis B Pierce	13611 Broadway	Alden NY	14004

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NAME	**ADDRESS**
Grace R. Willard	13 Banner Ave. Lancaster, N.Y.
Jim Colosanti	176 Central Ave.
Mike Mistretta	16 Birchwood
Vince Dire	16 Birchwood
Eric Young	107 Aurora St. Lancaster NY
Daniel Wroth	3509 Bowen Rd.
Patrick Olivo	34 [illegible] Ave
Sandra Hope	3672 Briarwood Ct. Hamburg
Debbie Kaczmarczyk	52 Banks Depew, NY
Mara Tenuzzo	4660 Boncrest East, Willms., NY
Stan Slonecil	43 Broezel Lancaster N.Y
Cindy Battistoni	27 Melody Lane Cheektowaga, N.Y.
Jeff Vaughan	172 Central Ave Lancaster NY
Eugene Yovacki	21 Brandel Ave Lancaster N.Y.
Sandy Lepkey	15 Ashford Pl. Depew NY 14043
Mary Ostrutt	256 Pleasantview Dr Lanc 14086
Greg Bress	24 Mason Place Lanc 14086
Kevin Leatherbarrow	19 South Irwinwood
Lisa Greenhouse	23 Michelle Drive Depew N.Y. 14043
Michelle Boyd	7 Michele Dr. Depew N.Y. 14043
Carrie Pratt	221 Marrano Dr. Depew 14043
Chris Friedmann (Fred)	79 Southwest Parkway Lancaster NY 14086
David Dragroph	29 Randolph, Lancaster
Roxanne Dekam	4551 William Lancaster 14086
Todd Elliott	
Dave Faulhaber	
Janice Borkowski	708 Ransom Road Lanc NY
Jenny Wasniewski	54 Park Blvd Lanc NY
Nikki Adams	1107 N. Maple Will.
Kerry Watson	46 Susan Dr. Depew NY

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NAME	ADDRESS
Francine Stolm	62 Hagel Dr Chek, NY 14225
Melanie Bassinger	36 Oakwood Dr Chek NY 14227
Robin Metz	11 McKenzie Ct. Chek NY 14227
Sue Callahan	23 McKenzie Ct. Cheek NY 14227
Kim Wickeld	123 Robert Dr Depew NY 14043
Rachele Moritz	20 Oakwood Dr Cheek NY 14227
[illegible]	32 Oakwood Dr. Chek NY 14227
John Liebrecht	32 Vernon Buffalo N.Y. 14212
Jay Hess	530 Gould Ave. Depew N.Y 14043
Tammy Taton	2095 Broadway Cheek NY 14227
Debbie Battaglia	127 River St. Depew NY 14043
Ann Shaw	170 Berkley Rd Wmsvl NY 14221
Nail Karzoun	192 S. union Rd williamsville N.Y 14221
Nader Karzoun	192 S. union Rd Wmsvle NY 14221
Tammy Sailer	530 Gould Ave Depew NY 14043
Ann Dudley	41 Glenmore Dr. Kenmore NY 14223
Nancy Walker	4189 Connection Dr Williamsville 14221
James J Walker	4189 Connection Dr Williamsville 14221
[illegible]	206 Carrier St. 14212
D Dose	12770 W Main St Alden NY
Scott Stettemann	339 Broezel Lancaster NY 14086
Paul Kingswell	3841 Walden ave Lancaster NY 14086
Bonnie Wey	526 Pleasant View Lancaster NY 14086
Dawn Radecki	336 River St. Depew NY 14043
Robert Liebrecht	15 Carefree Lane - Chek, NY 14225
Dena Currier	25 Dwyer - West Seneca, NY 14224
Charles Battagli	185 Central Ave Lancaster NY 14086
TODD KNOSE	13 BANNER LANCASTER, NEW YORK 14086
Lisa Jordan	40 Ashford Place Depew NY 14043
Nancy Tamulski	302 Columbia Ave. Depew NY 14043

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NAME	ADDRESS
Marge Lotz	1019 3 Rod Rd., Alden, N.Y. 14004
Judy Brown	904 Folsomdale Rd. - Cowlesville N.Y. 14037
John Fiegl Jr.	2087 Two Rod Road, Marilla N.Y. 14102
Catherine Hageman	11 North Shore Dr. Alden N.Y. 14004
Marian C. Thompson	1848 West Ave, Marilla N.Y. 14102
[illegible] Moran	869 Blossom Ln. Alden NY 14004
Karen Koch	2647 Peters Corners Rd. Alden 14004
Robert W. Swanson	1662 Barker Ave, Alden, N.Y. 14004
[illegible]	[illegible] Alden N.Y. 14004
Ralph Brown Jr.	1361 Emerson St Alden NY 14004
Robert W. Eaton	13391 Bdway, Alden NY 14004
Alice V. Strate	13699 Broadway Alden 14004
Suzanne Brown	35 Rollingwood Dr. Lancaster NY 14086
Katherine L. Hodges	2437 Two Rod Road, East Aurora NY 14052
Helen M. Pierce	13611 Broadway N.Y. 14004
Sharon Pilgar	1048 Boncliff Dr. Alden N.Y. 14004
Gladys Wiley	12896 Broadway Alden N.Y. 14004
Mary C. Geyer	1570 Emerson St Alden NY 14004
Daniel H. Smolarek	1924 Sandridge Rd. Alden, N.Y. 14004
Willard Eastwood	13051 Broadway Alden, N.Y. 14004
Mr. & Mrs. Ted Mrozinski	1593 Meadow Dr., Alden, N.Y. 14004
Edward E. [illegible]	11851 E. Telegraph Rd. Medina NY 14103
Joan Bushek	11309 Broadway Alden, N.Y. 14004
Elaine Nowak	13369 Bullis Rd. Alden NY 14004
Patrick & Sylvia Nevin	1135 Exchange St Alden NY 14004
Larry [illegible]	1745 Meadow Dr. Alden N.Y. 14004
Lori Granza	135 Irwinwood Rd. Lancaster NY 14086
Sandra [illegible]	2326 Williston Hgts - Marilla NY 14102
Carol Freeman	2368 Wande Rd Alden NY 14004
Linda Lee Stecher	12346 Westwood Rd Alden NY 14004

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NAME	ADDRESS
ichael P Kehoe	Michael P Kehoe 346 Rockingham St Rochester NY 14620
ill Walters	William W. Walters 35 Morville Dr. Rochester, NY 14615
Don Paulus	Don Paulus 83 Tottenham Rd Roch. NY 14609
D.C. Howland	David C Howland 52 Illinois St Rochester N.Y. 14609
[illegible]	Gregory R Brynask 301 Pond View Heights Rochester NY 14612
Tony M [illegible]	Tony Mastrodonato 54 Glen Oaks Dr Roch, NY 14624
[illegible]	[illegible] 24 Avon Rd. Roch NY 14625
[illegible]	David Seitz 280 N. Main St. Canandaigua, NY 14424
[illegible]	Sam Lesh 45 Gold St Roch. N.Y. 14620
Michael D. Sayre	Michael D. Sayre 818 Tinker Tavern Rd. Webster, NY 14580
Lori K Basciani	Lorie K Basciani 151 Wildflower Drive Rochester, NY 14623
Tom Lyons	Tom Lyons 25 Tyburn Way Rochester N.Y. 14610
Antoinette Mullaney	Antoinette Mullaney 7431 Maiden Lane Sodus Pt N.Y. 14555
Pat Bowen	Pat Bowen 60 Mayfield St Rochester NY 14609
Steve Edd	[illegible] 2512 Blackwell Ln. Henrietta NY 14467
Robert E. Stehler	[signature] 22 Stoney Path Lane Rochester NY 14626
Alan C. Jones	[signature] 3 Wenlock Rd Fairport NY 14450
Richard Thrower	[signature] 14/6 Black Watch Apartments Fairport
Richard T. Kodweis	Richard T. Kodweis 165 Crestfield Dr Roch NY 14617
Bill Dempsey	William Dempsey 4 Laurelton Rd. Rochester N.Y. 14609
Carl Pedko	Carl Pedko 451 Embury Rd Rochester NY 14625
Ted Bryzinski	Ted Bryzinski 215 Raphael Dr. Webster, N.Y 14580
Earl Ipsaro	Earl Ipsaro 1845 Flint Hill Rd Leroy, N.Y. 14482
Don Betsinger	Don Betsinger 60 Squirrels Heath Rd Fairport N.Y. 14450

Please return to:

hirley A. Scherlein, 12917 Main St., Alden, NY 14004 - 937-6337.

NEWSPAPER ARTICLES

Times Herald/Olean, N.Y./September 8, 1987

Public Meeting Slated On Dam Project Study

MT. MORRIS — A public meeting to discuss the results of the reconnaissance study of the Genesee River basin will be held Sept. 10 at 7:30 p.m. at Mt. Morris Central School on Bonadonna Avenue.

The meeting has been scheduled by the U.S. Army Corps of Engineers. It will discuss the past findings that valuable Genesee River basin resources "are yet to be developed to their fullest potential to provide for additional flood protection throughout the basin," the Corps said in a press release.

Discussion on the development of hydroelectric power generation, recreational activities, irrigation and other related water and land resources will also be included in the meeting.

The Corps said two potential project sites to be used to develop the river basin are under construction: the Stannards site, located on the Genesee River two miles upstream from Yorks Corners (south of Wellsville), and the Mt. Morris site, where an existing Corps dam is located on the river about 70 miles above the river mouth at Lake Ontario in Rochester.

More information on the meeting can be obtained by calling Wiener Cadet, study manager, at 716-876-5454, or by writing the U.S. Army Corps of Engineers, Buffalo District, 1776 Niagara St., Buffalo, N.Y. 14207.

Livinston County Leader/Livinston County, N.Y./September 16, 1987

Mt. Morris Dam Meeting Large Turn Out

At a public meeting to discuss two proposed Genesee River Projects, the Army Corp. of Engineers answered questions. The proposed $65 million project would build a new flood control dam in Allegany County and add a hydropower station to the existing dam at Mt. Morris. The Mt. Morris project has a cost analysis cost ratio of 3.8+; the Stannard project at 1.4+ cost ratio This means an annual net of $4.6 million for Mt. Morris and $200,000 for Stannards.

There was a fair amount of negative reaction to the Stannards project and a few questions as to the visual effect and the effect of water rafting from the Mt. Morris project.

The Army Corp. will progress to a more detailed feasibility study to determine whether to continue with the project.

The Buffalo News/Buffalo, N.Y./September 19, 1987

Don't Flood Letchworth Gorge

On Sept. 10, the U.S. Army Corps of Engineers held a public informational meeting in Mount Morris to present its ideas on two dam projects for the Genesee River: one at Standards and one at the existing Mount Morris Dam at Letchworth State Park.

The shocking reality is that the Corps proposes to flood at least 11 miles of the Letchworth Gorge from the Mount Morris Dam to above Wolf Creek.

This area represents approximately two-thirds of the river gorge within the state park. The permanent flooding of this area will have a significant impact on the scenic areas in the northern and middle sections of the park. People who enjoy this scenic area will face an entirely different picture if this project is built. Hikers and canoeists will find their activities and the scenic areas they have grown to love and enjoy changed forever.

Part of the white water section, from the Lower Falls to St. Helena, will be affected, with a significant impact for those people who enjoy white water canoeing, kayaking and public family rafting. These activities currently give the participant a very unique view of Letchworth State Park, looking up from the river and up the tall canyon walls of the gorge itself. Completion of the project would severely compromise the enjoyment of the river and the park.

The state Department of Environmental conservation and the National Park Service recently completed a study that categorized this stretch of the Genesee River through Letchworth Gorge as a Category 2 river, having "statewide recreational importance." The study found that this portion of the Genesee River provides recreational opportunities that are exceptional or unique in New York State. The hydroelectric project at the Mount Morris Dam and the resulting reservoir would clearly destroy this section of the Genesee.

Mitex Corp. of Boston, Mass., has federal approval to participate in further development of this study. If this project is completed, and generators owned and operated by this corporation are installed, Rochester Gas & Electric Corp. is required by law to pay this corporation 6 cents per kilowatt hour for power produced.

A Rochester Gas & Electric Corp. spokesman at the meeting stated when questioned that it is a cost burden to RG&E to purchase power generated by private hydropower generators. Since RG&E can produce its own power for much less, the cost of purchasing this power is passed on to the rate payers. Thus the myth of cheaper power for local residents was dispelled. The money generated by this project will not even go into the Rochester area.

For the sake of profit by a corporation outside of this state, the citizens of New York will lose 11 miles of scenic river gorge within their Letchworth State Park unless a strong public outcry is heard.

Another fact made clear at the Mount Morris hearing was that the proposed addition of 27-foot high gates on top of the current spillway would provide no additional flood protection. They would be needed to keep protection at current levels when the reservoir would be created. Thus the entire project is being considered mainly for the purpose of generating a minuscule amount of hydropower.

Letchworth State Park was created for the use and enjoyment of all the people of New York State through the generosity and foresight of Mr. Letchworth. We must oppose any attempt to wrest this stretch of the Genesee River and the beauty of the gorge away from the state residents.

We urge all those who love Letchworth State Park to write to the U.S. Army Corps of Engineers in Buffalo by [illegible].

STEVE and NANC[illegible] MITCHELL
Webster

Times-Union/Rochester, N.Y./September 29, 1987

Residents debate plan to make power in Letchworth

By KAREN KRENIS
Times-Union

MOUNT MORRIS — The gray stone mountain that sprawls across the Letchworth State Park gorge hardly looks like a source of controversy.

A man-made pillar of strength, the Mount Morris Dam appears as permanent as the 300-foot gorge it spans; as indestructible as it seems inflexible.

But officials from the U.S. Army Corps of Engineers are proposing a plan that would alter the dam to create hydropower.

And that plan has both environmental groups and the power company that serves much of the Mount Morris area ready to take up arms.

The controversial project calls for a standing reservoir to be retained behind the south side of the dam, one that would stretch back over 11 miles of the spectacular gorge.

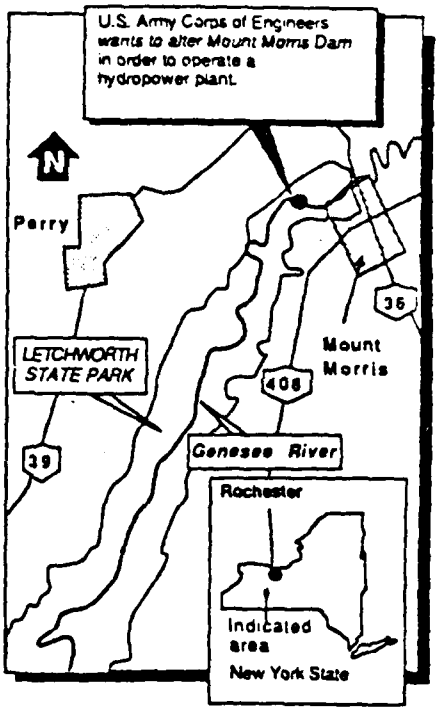
The 36-year-old dam wall would be raised 27 feet, to a new height of 242 feet above the streambed.

The result would be the generation of hydropower, in which electricity is produced by channeling falling water into a standing reservoir.

The hydropower plant is an idea that the Army Corps has been kicking around since 1962, boasting benefits that include long-term energy savings and better flood control, said Wiener Kadet, project manager for the Army Corps. But for various reasons, no plans have made it past the drawing board, he said.

Rochester Gas & Electric Corp. officials say the hydropower plant would force them to charge customers in the Mount Morris area higher prices. They could not predict when, or if, those prices might go down.

Please turn to page 3B



Bryan Wittman/Times-Union

Tribune/Hornell, N.Y./September 30, 1987

Opposition mounts to Letchworth hydro plan

MOUNT MORRIS (UPI) — Environmentalists have mounted a campaign "to the hilt" to stop flooding a part of the scenic Genesee River gorge in Letchworth State Park to produce hydropower.

The 1,000-member Genesee Valley Chapter of the Adirondack Mountain Club maintains the Army Corps of Engineers proposal to raise the dam 27 feet.

The group says the proposal would "destroy whitewater recreational activity, inundate and destroy the unique ecosystem within the gorge, and severely compromise the scenic beauty of the park."

A suburban Rochester couple, Steven and Nancy Mitchell of Webster, have organized a letter-writing campaign to let federal officials know that outdoors enthusiasts are opposed to the project.

"We firmly intend to fight this to the hilt," said Steven Mitchell, 32. "William Pryor Letchworth would not have wanted a flooded gorge when he gave his property to the state."

On Sept. 1, the Corps of Engineers proposed raising the 36-year-old Mount Morris Dam to provide an 11-mile-long pool of water for hydroelectric facilities.

The Corps also proposed building a dam in Stannards, Allegany County, to protect against flooding and provide a reservoir for conservation and recreation.

Wiener Cadet, a civil engineer and study manager with the Corps of Engineers in Buffalo, stressed that the Mount Morris project is just a proposal and said those opposed to the project are basing their arguments on misinformation.

"I have received a number of letters ... from people expressing concern about any project that would flood the gorge and the falls at Letchworth State Park," Cadet said.

"What they are concerned about is not something that is real. We have not planned to flood the gorge all the way up to the areas where they are recreating," he said.

The 300-feet-deep Genesee River gorge at Letchworth has been referred to as "the Grand Canyon of the East" and is the major attraction in Letchworth Park.

Livonia Gazette/Livonia, N.Y./October 12, 1987

Wiener Cadet Speaks on Letchworth Power Project

by Don ~~Bodurn~~

The Genesee Valley Chapter of the Adirondack Mountain Club has launched a campaign against the proposed hydropower project at the Mt. Morris Dam. The chapter is circulating flyers in Livingston and Monroe Counties asking people to send letters of protest to the U.S. Army Corps of Engineers.

According to the flyers, "...the project would alter the character of the Genesee River Gorge within Letchworth State Park. The proposed creation of the Lechworth Reservoir would serverly compromise the scenic beauty of the park, destroy whitewater recreational activities, and innundate and destroy the unique ecosystem existing within the gorge..."

Steve and Nancy Mitchell of Webster are leading the opposition effort. The club is posting appeals in area outdoor stores and is seeking support from environmental groups.

The following is a rebuttal to the club's claims from Weiner Cadet, Corps. Project Manager:

•The Corps has no plans as of yet to build a plant. At this point it is just a series of ideas.

•The planning process is still in the very early stages. It will be open to input until a plan is developed that is acceptable to public and private interests.

•The feasibility study is expected to be complete within the next two years. Then the study would be reviewed by headquarters. The design and the construction phase would follow.

•There is no construction firm yet. Enercan Construction of Cuba is to study the feasiblity of constructing a hydropower plant.

•The plant has to meet the Corps' standard of quality. The Corps will not build anything which would disturb the dam or flood control plan. The project will actually provide more flood control. The Corps is aware of the environmental impact on recreation. The reservoir would not reach or affect recreation areas within Letchworth State Park.

•The size of the reservoir has not yet been determined.

•By the year 2000 there won't be enough power to meet consumer demand. The resource is there, just not developed yet.

Malone Evening Telegram/Malone, N.Y./October 23, 1987

Hydro projects hurt rafting

By MARY ESCH
Associated Press Writer

A coalition of whitewater rafters and kayakers, citing "a genuine natural resource emergency," pleaded with state legislators last spring to stop a flood of small hydroelectric projects on New York rivers.

The American Whitewater Affiliation issued a press release warning that more than 360 hydro projects were in the works across the state. The National Audubon Society distributed a report calling small hydro "a resource ripoff rivers and ratepayers cannot afford."

"If installed, these projects will either flood or dry up by 1990 virtually all of New York's rapids and waterfalls not protected by wild and scenic designation," wrote rafting outfitter Ron Smith in the AWA statement.

According to developers, however, the small hydro flood has slowed to a trickle -- dammed by environmental restraints, regulatory roadblocks, falling oil prices and federal tax reform.

"The industry is against the ropes," says Paul Elston, president of Long Lake Energy Corp. of New York City, a public corporation whose portfolio includes plans for 32 hydroelectric projects totaling 500 megawatts of power.

"The majority of projects that are in the pipeline now will be completed," says Mike Tucker, vice president of the Albany-based Mercer Company, which operates five hydro projects in northeastern New York. "But there will be a much different business analysis in making the decision to develop future sites."

The seed for the independent hydro industry was sown in 1978 when Congress passed the Public Utilities Regulatory Policies Act, which set up a favorable financial climate to foster private development of alternative energy sources.

The Federal Energy Regulatory Commission has received more than 7,500 small hydro project applications in the last seven years, according to FERC spokeswoman Sharon Hyland.

In New York state, more than 300 projects have been proposed on about 170 sites, according to analyst Pete Smith of the state Energy Office.

Tucker's company is the largest operating independent hydro firm in New York, with a total capacity of 50 megawatts being sold to Niagara Mohawk Power Corp. for more than $12 million a year. But Tucker said Mercer has no other hydro projects in the works.

"The hydro industry has changed," Tucker said. "Back when oil prices were high and interest rates were going down, everything was rosy. Now oil prices have dropped (thus lowering the 'avoided cost' rate paid by utilities for hydropower). And Congress has reshaped the tax law to phase out investment tax credits and accelerated depreciation, which was a tremendous incentive to the development of this industry."

"Then you have the whole new environmental-recreational issue that didn't exist in the early days," Tucker said. "In the early days the principle focus was to encourage hydro because it wasn't burning fossil fuel. But now there's a tremendous increase in public scrutiny from the environmental and recreational community."

The American Whitewater Affiliation has been a formidable foe to hydro developers.

Rafting outfitter Ron Smith found his livelihood threatened by Mercer's largest project, a $40 million, 32-megawatt plant on the Black River near Watertown. Smith, whose Adirondack River Outfitters takes thousands of whitewater rafters down that stretch of river, joined with the AWA to intervene in Mercer's federal licensing process until the company gave in to a list of demands.

"We gave them $125,000 a year worth of energy production to provide 500 hours of whitewater recreation during the summer," Tucker said.

Elston figures whitewater kayakers cost him $3 million in construction delays and project alterations at Long Lake Energy's 12.5-megawatt plant on the Moose River north of Utica. He says he had invested five years and $700,000 in a project on the Black River before the AWA intervened and got the state to hold up the license for a recreational study.

Times Herald/Olean, N.Y./November 14, 1987

Estimates Needed For Flood Control

By MARK WHITEHOUSE
Times Herald Staff Writer

ANDOVER — Residents of the village and town of Andover may get a flood-control program and relief from the Sept. 12-13 flooding, but it's going to take considerable work.

County Legislative Chairman Leonard Watson, R-West Almond, Robert Pederson, district conservationist for the Allegany County Soil and Water Conservation District, and John Tucker, county director of emergency services, were on hand at the Andover fire hall Friday afternoon to explain to residents the necessary steps to go through to obtain relief and a prevention program.

Mr. Watson explained to those present — about 35 people — that the U.S. Army Corps of Engineers is considering conducting a reconnaissance study with regard to damage from the September flooding. This will include the possible implementation of a flood control project "not only to fix what's happened, but to prevent it from happening again."

HE STRESSED, though, that the Corps "needs figures — and lots of them.

"It isn't going to happen without lots of work on a lot of people's parts," Mr. Watson said.

Mr. Pederson told residents that "a cost-benefit ratio is necessary" if the Corps is to consider implementing the flood-control program.

This ratio, he said, can best be arrived at by "putting down the exact damages" incurred by the flooding. He said every federal agency requires a positive cost-benefit ratio. In other words, he said for every dollar spent, there must be a benefit of at least $1.01.

He said in 1979, a study was conducted in Andover and the benefit was determined at only 30 cents per dollar spent. Subsequently, the possibility of a flood-control plan was dropped.

"Put down the exact damages — either the cost of replacing or properly correcting what has been lost," Mr. Pederson emphasized. "We need those figures."

AS AN EXAMPLE, Mr. Pederson said if a person lost a 15-year-old freezer, they shouldn't report it at it's value, but the cost of replacing it.

"The only way you can have a project is if you substantiate and justify it with a substantial dollar figure," Mr. Perderson said.

Jacqueline Bellamy, superintendent at Andover Central School, told Mr. Pederson that "$15,950 in damages" had been incurred on "school grounds and athletic fields."

Mr. Pederson suggested "getting a professional estimate" for the cost of repairing, "or replacing" the foundation.

Mr. Watson handed out damage estimate forms to those present and noted that others are available at the town and village offices.

Mr. Pederson advised that it would be best to have the forms filled out and sent to the Corps "in two or three weeks." Mr. Watson noted that "the sooner you get them in, the better," the Corps can review them.

MR. PEDERSON SAID residents should fill out estimated damages for flooding that occurred in 1972 and 1984 as well; each should be placed on a separate form. The infomation, he said, "will then be summarized by the Corps."

Mr. Pederson added that for businesses, "estimates should be given not only for property damaged," such as equipment, "but for business lost" such as sales and revenue.

"Be detailed and accurate," he said.

Mr. Pederson said that in past instances, with regard to reporting flood-damage estimates, "they were underestimated."

He said this "is why the meeting was called," to get people to be more efficient and accurate in reporting damage.

Leon McNeill, a resident of Andover, said that any damage that occurs in Wellsville "should be included on the damage report because the waters start in Andover" and travel to Wellsville.

Mr. Pederson said it "will be taken into consideration — to what extent I don't know."

He added that Congressman Amory Houghton Jr., R-Corning, wants "concrete suggestions on other possible programs," and "if you're serious about a program get as many people as possible to fill out forms."

Reporter/Wellsville, N.Y./November 24, 1987

Group forming to lobby for a dam in Stannards

By KATHRYN ROSS
Staff writer

WELLSVILLE — Concern over the Stannards Dam issue has prompted the establishment of a citizens' action group in favor of the dam.

The Greater Allegany Lakefront Association, organized to promote a responsible public discussion of the proposed lake south of Stannards, is in the early stages of forming.

Even though the group has only been in existence since a meeting with the Army Corps of Engineers about a proposal for a dam on the Genesee River in September, its spokesman, William Gunner, said the group has many supporters.

The goal of the group, Gunner said, is education so that people can make a well informed decision about the project.

In a statement of the purpose of the Greater Allegany Lakefront Association (GALA), Gunner said the proposal has met with very vocal opposition, and not without some reason.

There will be some adverse results if the lake is built, including the relocation of some homes and businesses.

However, these seem to be outweighed by the development and improved habitat that will result if the lake is built and managed properly, he said.

"GALA's initial task is to understand and evaluate the Army's proposal and disseminate the information," he said.

After the Mt. Morris meeting, Gunner said, he saw a need for a group to evaluate the information presented by the Army engineers and to research the possible local economic and recreational benefits of a dam in Stannards.

"It's important that there is a public discussion or forum presenting both sides of the issue," he said.

The group, encouraged by the success of a citizens' group in another part of the state, believes that a dam in Stannards can have a great economic impact on the area through recreational usage.

Gunner explained that a citizens' group promoted the Great Sacandaga Lake, another Army Corps of Engineers project, from a reservoir for flood protection in the Troy and Albany area, into a positive economic factor.

Although the Sacandaga Lake project is bigger than the Stannards Lake proposal, Gunner said that by scaling down the results from the big lake to the 60 miles of shoreline of the Stannard's lake, the group can get a good idea of the kind of economic impact the lake can have.

"We're not exactly sure of the Army's intentions, but a watchdog group that would promote the recreational aspects of a dam is needed," he said.

Of the Corps proposal, Gunner said that to date the group has found that recreation is a stated goal of the Army, although it is not primary.

"It has been said that the Army's goal is not to create a recreational area and that the result of the project will be a muddy hole. The Army's primary goal is flood control and the prevention of soil erosion, however it has considered the dam in the terms of national economic development. In my opinion," he said, "Who cares what it will mean nationally? We want to know what the economic impact will be locally. GALA can help determine what that effect can be."

Gunner said that according to the Army's proposal for water level and winter draw down, the lake should be able to support recreational usage and new habitats for wildlife.

Discussing the difference between the lake level at normal stage and flood level and a prohibition on building within the areas concerned, Gunner said that was a problem the Sacandaga group dealt with successfully.

"At Sacandaga, they have docks built on tracks that can easily be raised or lowered depending on the water level. The property owners also have easements to the lake and the green space maintained around the lake adds to its scenic beauty.

At this point Gunner said, GALA wants to help clear the air on the matter of the dam and to promote public awareness.

In the long run if the dam is built, he said, it will be important to have a citizens' group in place to watch over the Army.

Gunner said membership in GALA is open to anyone interested in developing a healthy public dialogue regarding the Stannards lake project. Those interested may contact him.

Buffalo News/Buffalo, N.Y./December 2, 1987

Corps Won't Desecrate Letchworth

Congratulations on the Letchworth Dam Project editorial in The News Nov. 15. It was fair and accurate to report that the proposed modification to the existing Mount Morris dam would not flood the entire Letchworth gorge or wipe out all the waterfalls and hiking trails.

In fact, the project would not change or submerge any waterfalls. Nor would it wipe out any of the white-water reaches now used by canoeists and rafters. Neither would it destroy trails in areas where hiking is popular.

During the past two months, I have read more than a thousand letters about proposed projects in the Genesee River Basin. It's clear that there is an enormous amount of heartfelt opposition to any change in the Letchworth gorge. Many seem to feel that the Corps of Engineers seeks to destroy the beauty of the gorge. That's just not so. I will not recommend any plan that degrades existing recreational opportunities or significantly alters the existing character of Letchworth gorge.

No one can be sure of what William Pryor Letchworth would think or say about the proposal. As a farsighted man interested in the public good, he would probably reserve judgment until the study was completed and all the facts were in. No one favors "tinkering," but not many objected to the carefully planned and well built dam constructed in 1952.

That fine and useful structure, by the way, currently impounds a conservation pool extending five miles upstream between June and November, which neither impairs recreation nor offends the eye. It may well be that there is a chance to increase flood protection, realize a hydropower opportunity and gain other water resource benefits without significantly changing the character or appearance of Letchworth gorge.

I will recommend no project that is not socially acceptable, environmentally sound, economically smart, and practical from an engineering viewpoint. Moreover, no project will be built unless a local sponsor, willing to share construction costs, is identified.

COL. DANIEL R. CLARK
District Commander
U.S. Army Corps of Engineers
Buffalo

Metro Community News/May 8, 1988

Letchworth Is Safe For the Time Being

By Dale Volker
State Senator, 57th District

One of the great treasures in the 59th Senate District is Letchworth State Park—often called the Grand Canyon of the East. To many who live here, it's something we take for granted—sort of like a person in Manhattan who has never been to the top of the Empire State Building.

Over the past six months, events have led us to look a little more closely at Letchworth Park because its future has been threatened. I'm talking about a hair-brained scheme by the Army Corps of Engineers to raise the dam at Mt. Morris by 30 feet—in the process creating a 2,000 acre reservoir and destroying the landscape of the park forevermore.

My own personal memories of the park go back to the days when my father used to take my brother and me fishing along the Genesee River. My background leads me to be an Albany advocate for sportsmen and this inclination is reinforced by the tremendous number of my constituents who enjoy fishing and hunting. I'm not going to burden you with a bunch of fisherman's tales—suffice it to say that the fishing isn't what it used to be.

One of the factors that led to the decline was the construction of the exisiting flood control dam at Mt. Morris. Built in 1952, it has prevented flood damage in the area with minimal environmental harm and we fishermen have had to learn to live with it.

The problem now is that we have some engineer types, who think that bigger is better and that much bigger would be much better yet. The Army Corps of Engineers, a group of eager beavers who never met a body of water they wouldn't like to dam up, is at it again. This time they've teamed up with some entrepreneurs who develop hydropower and who see a dollar sign in every drop of water that flows over one of the Corps' concrete monstrosities.

This isn't the first time the federal "beaver patrol" has contemplated raising the dam at Mt. Morris. In the '70s, at the height of the energy crisis, the Corps of Engineers advanced a similar proposal. The enormous environmental tradeoff for the new energy to be produced made little sense then and even less now.

Under state law, Rochester Electric and Gas would be mandated to purchase any hydropower produced at such a facility. The purchase price would actually be higher than the cost for the utility to produce its own power, thus increasing the cost to ratepayers.

Back in November, assemblymen Bill Paxon and John Hasper joined me in a meeting with Congressman Jack Kemp. The four of us agreed to oppose any tinkering with the Mt. Morris Dam and Jack let it be known that funding requests from the Army Corps of Engineers would be viewed with great disfavor if they persisted with their foolhardy proposal.

That was enough to kill the idea with the eager beaver crowd from the Corps, who understand where the bark is located on the log. That left us with the energy entrepreneurs who continue to eye the Letchworth Gorge.

To make it as clear as possible that we aim to protect Letchworth State Park, a bill that I sponsored in the Senate is now sitting on Governor Cuomo's desk.

GENERAL CORRESPONDENCE

W YORK STATE HISTORIC PRESERVATION

ission Chairman
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ny Potrzebowski

New York State Office of Parks, Recreation and Historic Preservation
Genesee Region—1 Letchworth State Park, Castile, New York 14427-1124 716-493-2611
Orin Lehman, Commissioner
Ronald F. Foley, Regional Director

April 18, 1988

Col. Daniel R. Clark, Commanding
U. S. Army Corps of Engineers
Buffalo District
1776 Niagara Street
Buffalo, NY 14207

Dear Col. Clark:

On Wednesday, April 27, 1988, the Genesee State Park Commission will be meeting in the Letchworth Room at the Glen Iris Inn at 11:00 A. M.

We would be very pleased if either yourself or your representative, Mr. Weiner Cadet who addressed the Commission previously, would attend this meeting and bring the Commissioners up-to-date on the Mt. Morris hydropower situation.

The material Mr. Cadet shared with the Commissioners and members of our staff was informative and helpful, and we are looking forward to an update.

Thank you for your consideration of this request.

Yours truly,

George L. Momberger
Assistant Regional Director

GLM:cp

CC: W. Cadet

ew York State Department of Environmental Conservation
Wolf Road, Albany, New York 12233-1750
vision of Regulatory Affairs

MAIL ROOM-NCBIM-S

28 MAR 88 11 10

Thomas C. Jorling
Commissioner

March 24, 1988

Mr. James Prez
c/o Visual Study Workshop
31 Prince Street
Rochester, NY 14607

Re: Mount Morris Hydroelectric Project
FERC Project No. 10076-000

Dear Mr. Prez:

This is in response to your March 21, 1988 telephone inquiry regarding Enercan Construction, Inc.'s proposal to develop hydroelectric generating facilities at the referenced dam site.

I have enclosed copies of ECI's application to the Federal Energy Regulatory Commission (FERC) for a preliminary permit, a copy of the preliminary permit, and a description of the proposed project. The preliminary permit gives ECI priority rights to the site during a specified three-year study period; it does not authorize ECI to construct and operate a hydroelectric station.

No modifications to the federal dam are proposed. However, the permittee's anticipated studies do include an evaluation of current flood control operations and drawdown schedules. Any proposals to change the established operating regime, among other considerations, would initiate an intensive environmental review by this Department.

Please do not hesitate to call me at (518) 457-2224 if you need additional information.

Very truly yours,

Murdock M. MacKenzie, Chief
Project Review Section

MMM/pm
Enclosures
cc: (w/o enc.) - L. Cashell (FERC)
Col. D.R. Clarke (COE-Buffalo)
W. Kiang (OPR)
C. Morrison
V. Husek
A. Butkas
File

Nussbaumer & Clarke, Inc.
Consulting Engineers Surveyors
310 Delaware Avenue Buffalo, New York 14202
(716) 853-7582

Oswego, New York
(315) 342-3010

Rochester, New York
(716) 442-5330

ERIE-NIAGARA CHAPTER
NEW YORK STATE SOCIETY OF PROFESSIONAL ENGINEERS
ENVIRONMENTAL AFFAIRS COMMITTEE

NOTICE OF MEETING

DATE: Wednesday, February 24, 1988

TIME: 12:00 Noon

PLACE: Buffalo Yacht Club

Colonel Daniel R. Clark, District Commander of the U.S. Army Corps of Engineers, Buffalo District, will be our speaker.

Colonel Clark's talk will be on the proposed dam project at Letchworth State Park, Genesee River.

19 FEB 1988

n Formulation Branch

SUBJECT: Proposed Hydro-Electric Project in Letchworth State Park

Mr. Ross W. Roberts
Chairman, Wyoming County
Board of Supervisors
P.O. Box 232
Warsaw, New York 14569

Dear Mr. Roberts:

Thank you for your letter dated February 3, 1988 requesting information on the proposed hydro-electric project in Letchworth State Park.

Regarding the hydropower study, as of this date, I have no information from the potential non-Federal developer on the progress of this study. However, I am in receipt of a letter informing me that Project Services International, Inc. of Philadelphia, Pennsylvania, has permit rights to study the feasibility of a hydro project. For specifics on the status of any studies Project Services may be conducting, I suggest you write to Mr. Doug D. Wilner, President, Project Services International, Inc., 755 E. Passyunk Avenue, Philadelphia, Pennsylvania 19147.

As background on the Buffalo District's studies in the Genesee River Basin, I am currently studying the feasibility of installing gates on top of the spillway section of the existing Mt. Morris dam to provide additional flood storage capacity. This additional capacity, now under consideration, would allow the Corps to further reduce flow releases to the lower Genesee River during normal and emergency operations of the reservoir and provide greater flood protection to the lower basin. I expect to make a determination on the feasibility of installing gates on the spillway this summer, at which time I will inform you of the results and solicit your input to my proposal for modifying the existing dam.

My point of contact pertaining to this matter is Mr. Wiener Cadet of my Plan Formulation Branch, who can be contacted at commercial number 716-876-5454, extension 2247 or by writing to the above address.

The Buffalo District -- Leadership in Engineering.

Sincerely,

DANIEL R. CLARK
COL., U.S. ARMY
COMMANDING

Daniel R. Clark
Colonel, U.S. Army
Commanding

CF:
CENCB-PD
CENCB-PD-PF

February 17, 1988

Colonel Daniel R. Clark
District Engineer - Buffalo District
U.S. Army Corps of Engineers
1776 Niagara Street
Buffalo, N.Y. 14207

Dear Colonel Clark;

GlenCoe Conservation Society is very concerned about the proposed dams on Cattaraugus Creek and Genesee River.

Would you, therefore, provide a speaker and/or audio or visual presentation which will explain the purpose, reasons, and proposed timetables for these projects.

The next available GlenCoe Society meeting date is Tuesday, March 29, 1988, 8:00 P.M., at the clubroom, Foote Road, East Concord, New York.

Your prompt, positive response will be greatly appreciated.

Please mail all correspondence to:

Richard J. Solak
President, GlenCoe Society, Board of Directors
8722 Supervisor Road
Colden, New York 14033

Please call for directions to clubrooms:

Office - 717-827-9895 Home - 716-941-5656

Sincerely,

Richard J. Solak

cc:
Mr. Wiener Cadet

AMERICAN SOCIETY OF CIVIL ENGINEERS

ROCHESTER SECTION
Established in 1923

February 2, 1988

Mr. Wiener Cadet, P.E.
U.S. Army Corps of Engineers-Buffalo District
1776 Niagara Street'
Buffalo, NY 14207

Dear Mr. Cadet,

On behalf of ASCE, I'd like to thank you for agreeing to speak to our group about the modifications to Letchworth Dam currently under study by the Corps of Engineers. The meeeting will be held on Wdnesday, March 9, 1988 at 12:00 noon at the Sheraton Inn-Rochester Airport, 1100 Brooks Avenue, located approximately as shown on the enclosed map. Luncheon will be served prior to your presentation. Please let me know if you would like to have any audio-visual equipment.

As you requested, I've enclosed some information describing ASCE. The "News Release-Background" describes the national organization. ASCE-Rochester section has approxiamtely 300 memebers. I've enclosed excerps from this month's copy of "The Rochester Engineer", an "umbrella" organization formed by 41 local engineering societies. This publication serves as our Section newsletter.

As we discussed by telephone, the notice will read as follows:

> **March Luncheon Meeting:** The U.S. Army Corps of Engineers-Buffalo District is currently studying potential modifications to Letchworth Dam to provide additional flood control to the lower reaches of the Genesee River Basin. Also, non-Federal interests are studying the feasibility of developing hydropower at the existing Mt. Morris reservoir. Mr. Wiener Cadet, P.E., Study Manager for the Genesee River Basin Comprehensive Study, U.S. Army Corps of Engineers-Buffalo District, will speak on the COE's study.
>
> The meeting will be held at the Holiday Inn Airport, 911 Brooks Avenue on Wednesday, March 9, at 12:00 noon. The luncheon is a choice of Julienne Chef Salad or Open-faced Rueben Sandwich. Non-members are always welcome.
>
> Please call Bonnie (H&A) at 232-7386 by Friday March 4 for reservations. Please note that space is limited. If you make a reservation, but are later unable to attend, cancellations are appreciated.

c/o Bergmann Associates, One South Washington Street, Rochester, N. Y. 14614

AMERICAN SOCIETY OF CIVIL ENGINEERS

ROCHESTER SECTION
Established in
1923

February 2, 1988

Please let me know if you have any addditional comments on this notice. I am looking forward to your presentation.

Sincerely yours,

Elizabeth M. Dwyre, P.E.
Director

Enclosure

EMD/kb

c/o Bergmann Associates, One South Washington Street, Rochester, N. Y. 14614

PROJECT SERVICES INTERNATIONAL, INC.

February 2, 1988

COPY

R. Peter Lalor
Vice President
Long Lake Energy Corporation
420 Lexington Avenue, Suite 440
New York, NY 10170

RE: **Mt. Morris Dam (FERC 10076)**
Canaadea Dam (FERC 9993)

Dear Mr. Lalor:

Project Services International, Inc. ("PSI"), through its wholly-owned subsidiary **Enercan Construction, Inc. ("Enercan")**, is the Permit Holder of FERC 10076 and FERC 9993 preliminary permits for the above-captioned hydro projects.

PSI and **Long Lake Energy Corporation ("Long Lake")** have executed a joint development and conditional purchase agreement regarding the projects, and Long Lake desires to review available documents and data and discuss the project with appropriate government authorities and other interested parties.

Long Lake is hereby designated as the authorized representative of the Permit Holder in these matters and all authorities, agencies, organizations, and individuals are requested to respond to inquiries and information requests from Long Lake as though coming directly from the Permit Holder.

Very Truly,

Douglas D. Wilner
President

cc: Wiener Cadet
Project Manager
U.S. Army Corps of Engineers
Buffalo District

755 E. PASSYUNK AVENUE • PHILADELPHIA • PA • 19147
215 • 922•1616

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233

Thomas C Jorling
Commissioner

November 12, 1987

U.S. Army Corps of Engineers
Buffalo District
1776 Niagara St.
Buffalo, NY 14207

Dear Colonel Clark:

This is in partial response to your letter of October 29, 1987 requesting an expression of interest and support for General Investigations studies. This letter addresses your study of the Genesee River Basin. We support the completion of the current feasibility study. Our criteria for sponsorship of flood protection projects is to support those projects which are engineeringly and environmentally sound, economically justified, meet local needs and for which satisfactory cost saving arrangements can be made with benefitting local governments.

With regard to the Mt. Morris Dam project, we believe that the potential negative environmental impacts and the current cost sharing requirements will likely preclude DEC sponsorship of the flood control element of the project.

Concerning the proposed dam/reservoir at Stannard's, the current cost sharing requirements and the local opposition to the project will probably preclude DEC sponsorship. Of course, a final determination cannot be made until the feasibility report and environmental impact statement are completed.

Sincerely,

James F. Kelley
Chief
Flood Protection Bureau

cc: E. Seiffer
J. Spagnoli
A. Buddle
T. Myers

JFK/ks

ENERCAN
Energy from Waste

21 December 1987

To Whom It May Concern:

AT this time we are notifying those concerned that Enercan Construction, Inc., including the Preliminary Permits for Hydroprojects at Mt. Morris and Caneadea Dam, has been sold by Enercan's Corporate headquarters to:

Project Services International
755 East Passyunk
Philadelphia, PA 19147
Phone (215) 922-1616
Attention: Mr. D.D. Wilner

Any further correspondance you may have concerning either Hydroproject should be addressed to Mr. Wilner.

Thank you for your considerations.

Sincerely,

ENERCAN RESOURCES CORP.

Glenn T. Herdman
V.P. Business Development

DEPARTMENT OF THE ARMY
BUFFALO DISTRICT, CORPS OF ENGINEERS
1776 NIAGARA STREET
BUFFALO, NEW YORK 14207-3199

REPLY TO ATTENTION OF
Executive Office

NOV 19 1987

Subject: Genesee River Basin Study

The Editor
Buffalo News
One News Plaza
Buffalo, New York 14224

Dear Sir:

Congratulations on your Letchworth Dam Project editorial of November 15, 1987. It was fair and accurate to report that the proposed modification to the existing Mt. Morris dam would not flood the entire Letchworth Gorge, or wipe out all the waterfalls and hiking trails. In fact, the project would not change or submerge any waterfalls. Nor would it wipe out any of the white water reaches now used by canoeists and rafters. Neither would it destroy trails in areas where hiking is popular.

During the past two months, I have read more than a thousand letters about proposed projects in the Genesee River Basin. It's clear that there is an enormous amount of heart-felt opposition to any change in the Letchworth Gorge. Many seem to feel that the Corps of Engineers seeks to destroy the beauty of the Letchworth Gorge. That's just not so. I will not recommend any plan that degrades existing recreational opportunities or significantly alters the existing character of Letchworth Gorge.

No one can be sure of what William Pryor Letchworth would think or say about the proposal. As a far sighted man interested in the public good, he would probably reserve judgment until the study was completed and all the facts were in. No one favors "tinkering," but not many objected to the carefully planned and well built dam constructed in 1952. That fine and useful structure, by the way, currently impounds a conservation pool extending five miles upstream between June and November which neither impairs recreation nor offends the eye. It may well be that there is a chance to increase flood protection, realize a hydropower opportunity, and gain other water resource benefits without significantly changing the character or appearance of Letchworth Gorge.

I will recommend no project that is not socially acceptable, environmentally sound, economically smart, and practical from an engineering viewpoint. Moreover, no project will be built unless a local sponsor, willing to share construction costs, is identified.

Daniel R. Clark

Daniel R. Clark
Colonel, Corps of Engineers
District Commander

CENCB-PD-PF

MEMORANDUM FOR RECORD

SUBJECT: Genesee River Basin Study, Agricultural Production on the Lakeplain

1. Location: Comstock Foods, 1 Fisher Road, Pittsford, New York

2. Date: 7 April 1987, 1:30 p.m.

3. Participants: See attached sheet

4. Summary:

a. Introduction. Project Manager, Wiener Cadet, gave a brief synopsis of the study in general, the study's current phase (Feasibility Study), and cost-sharing formulas for study and project costs. The meeting's purpose was two-fold. First, to determine if there is a local sponsor that will share in the cost of any irrigation component of the multi-use project. Secondly, to obtain feedback on the irrigation analysis performed in the Reconnaissance Report.

The irrigation portion of the project consists of substituting water currently being taken from the Barge Canal with water from the Genesee River. This water would then remain in the Barge Canal and be available for irrigation of the Lake Ontario Plain.

b. Potential Sponsors for the Irrigation Portion of the Study.

Various potential sponsors (Soil Conservation Service, Cooperative Extension, local Food Processors, The Grange Association, and the State Agriculture & Markets Agency) were identified, but none were committed as probable potential sponsors. The Food Processors indicated they favor such an irrigation proposal for the lakeplain. Tom Nally agreed to contact the State Agriculture & Markets Agency regarding sponsoring the irrigation component of potential multi-purpose project.

c. Discussion of the Irrigation Benefit Evaluation in the Reconnaissance Report.

Ray Waxmonsky explained the assumptions made for the Irrigation Benefit Evaluation presented in the Reconnaissance Report. Two major questions were discussed.

(1) Is there a need and demand for irrigation produce production?
(2) If yes, what are the location, and number of acres by vegetable and fruit type?

(a) Need for Irrigated Vegetable Production.

All of the Food Processors indicated the percentage of their growers who could potentially use Barge Canal water is limited because of the location of the farms with respect to the Barge Canal. However, an indication of the number of acres that could potentially irrigated with barge water was given by Comstock Foods as follows:

Acres	Produce	
2,000	Corn	Potential irrigated average by crop (Comstock Foods)
2,500	Beans	
400	Cabbage	

The need for irrigation water for fresh fruit production was also discussed.

(b) Location and Number of Acres the could use Irrigation Water from the Barge Canal.

The consensus reached was that there is a need for irrigated vegetable and fruit production. The number of acres involved and their location, for at least processed produce, could be generally determined by the Food Processors. They all agreed to consider determining the number, location, and types of produce grown by their members who could use Barge Canal Water for irrigation.

Further investigative work needs to be performed to obtain reliable data on the number of acres used for fresh produce production along the Barge Canal. Their location, types of crops grown, percent now irrigated, capability of irrigating acres, etc.

5. The meeting adjourned at 4:00 p.m.

Project Manager

GENESEE RIVER BASIN STUDY

Agricultural Production on the Lakeplain
Comstock Foods, 1 Fisher Road, Pittsford, New York
7 April 1987

Name	Representing	Telephone
Ray Waxmonsky	U.S. Army Corps of Engineers	716-876-5454 x2178
Ron Guido	U.S. Army Corps of Engineers	716-876-5454 x2177
Tom Nally	Monroe Co. Coop. Extension	716-461-1000
Bob Bocksler	General Foods Corporation	716-226-3344
Gib Scott (Tom Facer)	Comstock Foods	716-385-6580
Steve Klus	Seneca Foods	315-926-4284
Roger Haberly	U.S. Army Corps of Engineers	716-876-5454 x2265
Wiener Cadet	U.S. Army Corps of Engineers	716-876-5454 x2247
Cardle Rackowski	Orleans Co. Coop. Extension	716-589-5561

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233-

Henry G. Williams
Commissioner

August 11, 1986

Colonel Daniel R. Clark
District Commander
U.S. Corps of Engineers
Buffalo District
Department of the Army
1776 Niagara Street
Buffalo, New York 14207

Dear Colonel Clark:

This is in reply to your letter of July 3, 1986 concerning deauthorization of the Caledonia Project to which we had sent an interim reply dated July 9, 1986. This is to advise you that we have coordinated the matter with the Village of Caledonia and concur with your recommendation to deauthorize the project because of the lack of economic justification.

Sincerely,

James F. Kelley, Director
Flood Protection Bureau

RLK/dl

cc: E. Seiffer
A. Buddle
Honorable Robert Bostwick

DEPARTMENT OF THE ARMY
BUFFALO DISTRICT, CORPS OF ENGINEERS
1776 NIAGARA STREET
BUFFALO, NEW YORK 14207-3199

dl/2222

NCBPO

3 JUL 1986

SUBJECT: Review for Deauthorization for the Caledonia Flood Control Project, Caledonia, New York

Mr. James Kelley
Director
Flood Protection Bureau
New York State Department of
Environmental Conservation
50 Wolf Road
Albany, New York 12233-0001

Dear Mr. Kelley:

This is in response to a 25 June 1986 telephone request from Mr. Richard Konsella of your office and a 30 June 1986 letter from Mr. Eric A. Seiffer, Director, Region 8, DEC, for direct coordination on the subject project and file information on our 1976 review.

The Buffalo District is currently conducting this deauthorization review, pursuant to the Water Resources Development Act of 1974 (Public Law 93-251, as amended), approved 7 March 1974. This Act requires that Congress annually be provided a list of uncompleted Corps of Engineers projects which no longer are considered appropriate for continued authorization. Your present views regarding the appropriateness of deauthorization action on the project are requested.

The Spring Creek project, at Caledonia, NY, was authorized by the Flood Control Act of 1950 (House Document 232, 81st Congress, 1st Session), and provides for a diversion channel with a capacity of 400 cubic feet per second, to start at Spring Creek, just south of the New York Central Railroad, extending west, about 1,600 feet along the south side of the railroad, thence south about 900 feet to the end, at the Erie Railroad fill, passing through a new bridge at Main Street, and the filling of a low area west of Spring Road.

No work has been done on the Corps project, and it has been classified as deferred for restudy since 1954, due to the lack of local cooperation and opposition by the New York State Fish Hatchery at Caledonia, NY.

An initial deauthorization review was conducted in 1975 and completed in January 1976. The report on this initial review recommended that the project be deauthorized because of lack of economic justification. This recommendation was reconsidered at the request of local and congressional interests. Details of this review are attached as Enclosure 1. Reviews conducted in 1977 and 1983 reconfirmed the 1976 review findings and recommendations. The project, however, continue to be classified

NCBPO
SUBJECT: Review for Deauthorization of the Caledonia Flood Control Project, Caledonia, NY

continued to be classified as deferred for restudy. The estimated construction costs for the project, at October 1985 price levels are $240,000 Federal and $205,000 non-Federal, yielding estimated annual costs and benefits of $61,000 and $12,000, respectively. (Benefit-to-Cost-Ratio: 0.20 to 1). Improvement works performed in 1979, by local interest groups to reduce local flooding problems, consist of a ditch and a 4-foot diameter tile pipe running from the south side of Route 5 to the old New York Central Railroad and Mill Street. These improvements have further increased the lack of economic justification for the project. Since this benefit-to-cost ratio is substantially below the 1.0 benefit-to-cost ratio needed to economically justify Federal participation in the project, I will recommend that the project be deauthorized unless input you provide in writing, by 25 July 1986, causes me to decide otherwise.

The final decision on the deauthorization recommendation of the Office, Chief of Engineers rests with Congress. Any project submitted on the Chief of Engineers recommended list, may be removed by a resolution adopted by either of the Committees on Public Works, within a 90-day Congressional review period.

My point of contact pertaining to this matter is Ms. Mary Jo Braun of my Program Development Office who can be contacted at commercial number (716) 876-5454, extension 2222 or by writing to:

District Commander
U.S. Army Engineer District, Buffalo
1776 Niagara Street
Buffalo, New York 14207-3199
ATTN: Ms. Mary Jo Braun

Thank you for your views and assistance in this matter.

Buffalo District - Leadership in Engineering.

Sincerely,

Bruce W. Haigh, LTC

DANIEL R. CLARK
Colonel, Corps of Engineers
District Commander

1 Enclosure
As stated

CF:
Mr. Eric A. Seiffer
Regional Director
New York State Department
of Environmental Conservation
6274 East Avon-Lima Road
Avon, New York 14414

NCBPD-PF
NCBPD
NCBPA
NCBDE
NCBPO

NCBPO

20 JUN 1986

SUBJECT: Review for Deauthorization of the Caledonia Flood Control Project, Caledonia, NY

Mr. Carroll Bickford
Town Supervisor
Town of Caledonia
370 Leicester Street
Caledonia, NY 14423

Dear Mr. Bickford:

The Buffalo District is currently conducting a review of the subject project, for deauthorization, pursuant to the Water Resources Development Act of 1974 (Public Law 93-251, as amended), approved 7 March 1974. This act requires that Congress annually be provided a list of uncompleted Corps of Engineers projects which are no longer considered appropriate for continued authorization. Your present views regarding the appropriateness of deauthorization action on the project were requested by letter dated 24 April, 1986. I have not received a written response from you. I will recommend to the Chief of Engineers, that the project be deauthorized, unless input you provide, in writing, by 15 July 1986, causes me to decide otherwise.

The final decision on the deauthorization recommendation of the Chief of Engineers rests with Congress. Any project submitted on the Chief of Engineers recommended list may be removed by a resolution adopted by either of the Committees on Public works, within a 90-day Congressional review period.

My point of contact pertaining to this matter is Ms. Mary Jo Braun of my Program Development Office, who can be contacted by calling commercial number (716) 876-5454, extension 2222, or by writing to:

District Commander
U.S. Army Engineer District, Buffalo
1776 Niagara Street
Buffalo, NY 14207
ATTN: Ms. Mary Jo Braun

NCBPO

SUBJECT: Review for Deauthorization of the Caledonia Flood Control Project, Caledonia, NY

The Buffalo District -- Leadership in Engineering.

Sincerely,

SIGNED

DANIEL R. CLARK
Colonel, Corps of Engineers
District Commander

Copy Furnished:
NCBPO
NCBDE
NCBPA
NCBPD-PF

ALLEGANY COUNTY
BOARD OF LEGISLATORS
COUNTY OFFICE BUILDING
BELMONT, NEW YORK
14813

John W. Hasper, *Chairman*
Linda J. Canfield, *Clerk*
Telephone 716 268-9222

John E. Margeson, *Administrative Assistant*
Telephone 716 268-9217

May 27, 1986

John Zorich, Chief Planner
U.S. Army Corps of Engineers
Buffalo District
1776 Niagara St.
Buffalo, New York 14207

Dear Mr. Zorich:

On behalf of the entire Allegany County Planning Board, I wish to thank both you and Mr. Cadet for your presentation explaining the current study of the potential Genesee River dam project at Stannards.

The study has provoked a great deal of interest in our County and your program answered many questions.

Again, thank you for your time, effort and expertise. Wishing you success with your study.

Best regards,

Delores Cross, Chairman
Planning Board

DC:llc

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233-0001

Henry G. Williams
Commissioner

April 24, 1986

Colonel Daniel R. Clark
District Commander
U.S. Corps of Engineers
Department of the Army
Buffalo District
1776 Niagara Street
Buffalo, New York 14207

Dear Colonel Clark:

Please be advised of our continued interest in the Genesee River Basin Study and desire that expeditious action be taken to complete pre-authorization planning on this project as soon as possible.

Sincerely,

Richard L. Tonsella
for James F. Kelley
Director, Flood
Protection Bureau

RLK/dl

cc: Eric Seiffer
John Spagnoli
Ed Karath

GREAT WESTERN POWER & LIGHT, INC.
P.O. Box N
Manti, Utah 84642
Telephone: (801) 835-0202

January 7, 1986

Environmental Resource Planner
U.S. Army Corps of Engineer
Post Office Building, Room 341
350 South Main Street
Salt Lake City, Utah 84101

To whom it may concern:

In accordance with the Federal Energy Regulatory Commission (FERC) proceedures we request your comments for the filing of an application for licensing of a major hydroelectric water project, Great Western Power & light Inc. acting as the agent for Livingston County Associates request your input concerning the following proposal:

Description of Existing and Proposed Facility

Mount Morris Dam is located on the Genesee River approximately 67 river miles above the mouth of the Genesee River in Livingston County, New York. The project was authorized by the Flood Control Act of 1944, and construction was initiated in March 1948 and was substantially completed in December of 1951. The Chief of Engineers in April 1944 commented that "...the proposed Mount Morris Reservoir should be the initial step in any comprehensive plan for the development of the water resources of the Genesee River Basin. Provision should be made or increasing the storage capacity of the reservoir if found desirable when construction is undertaken. The increased capacity would afford greater security against flooding and the enlarged reservoir could be better utilized in the further development of the river's resources..."

Thus, the dam when constructed had flood control as its prime objective, but maintained flexibility for other uses including hydropower, by the inclusion of two intake openings in the left abutment suitable for installation of two 18 feet diameter penstocks.

Mt. Morris is a concrete gravity overflow dam, with an overall length of 1,028 feet, a top width of 20 feet and a bottom width of 212.8 feet.

The top of the non-overflow section is at elevation 790, while the overflow section is at elevation 760. The maximum height of the structure above stream bed is 215 feet. A control tower is located in the right abutment.

(continued on next page)

The spillway is an uncontrolled ogee section, 550 feet long, located in the center of the dam. With a head of 28 feet the spillway design discharge is 320,000 cfs.

The outlet consists of nine 5' x 7' rectangular conduits located in the base of the spillway section. Each conduit is controlled by a hydraulic vertical slide gate, with a second gate for emergency operation. The inlet invert elevation of each conduit is at 585.0 ft., while the outlet invert is at 560.7 ft.

As noted above, the construction of the dam also included provision of future hydropower development at the site by inclusion of two intakes in the left abutment, suitable for installation of two 18 ft. diameter penstocks. Each penstock opening with centerline elevation at 644.5 ft. is plugged with concrete pending future power installation.

No powerhouse or other power generating facilities are at the dam. It should be noted, however, that approximately 500 feet downstream of the dam toe, [left abutment] a relatively flat area has been created essentially from spoil material from the dam construction. This area may be suitable for location of a powerhouse and support facilities.

A 240 foot long, 464 foot wide stilling basin is located at the toe of the overflow section and serves both the spillway discharge and outlet conduits. The basin is set at elevation 560.0 feet and the training walls are at elevation 610.0 feet.

The proposed concept for power generation uses two of the low level outlets near the left abutment, combined in a single conduit, aligned to run at the base of the stepped training wall to the powerhouse located on relatively flat topography, just downstream of the stilling basin and sill. This configuration will have minimal impact upon the stilling basin and will result with the powerhouse above tailwater levels.

Livingston County Associates plans to utilize the existing 18 foot pipe provisions already located on the dam for hydroelectric facilities. We plan to have a total installed capacity of 5000 kW. We plan to operate this facility as a run-of-the-river hydro unit and do not plan to alter or change any of the flows released from the Mt. Morris Dam. We will be working closely with the Army Corps of Engineers, Buffalo District.

(continued on next page)

A copy of the preliminary permit No.8140 approved by FERC on this project is available upon written request.

We would appreciate receiving, at your earliest convenience, the results of your research and any comments,studies or recommendations you may have.

Thank you for you help in this matter.

Jordan R. Walker

Jordan R. Walker

(continued on next page)